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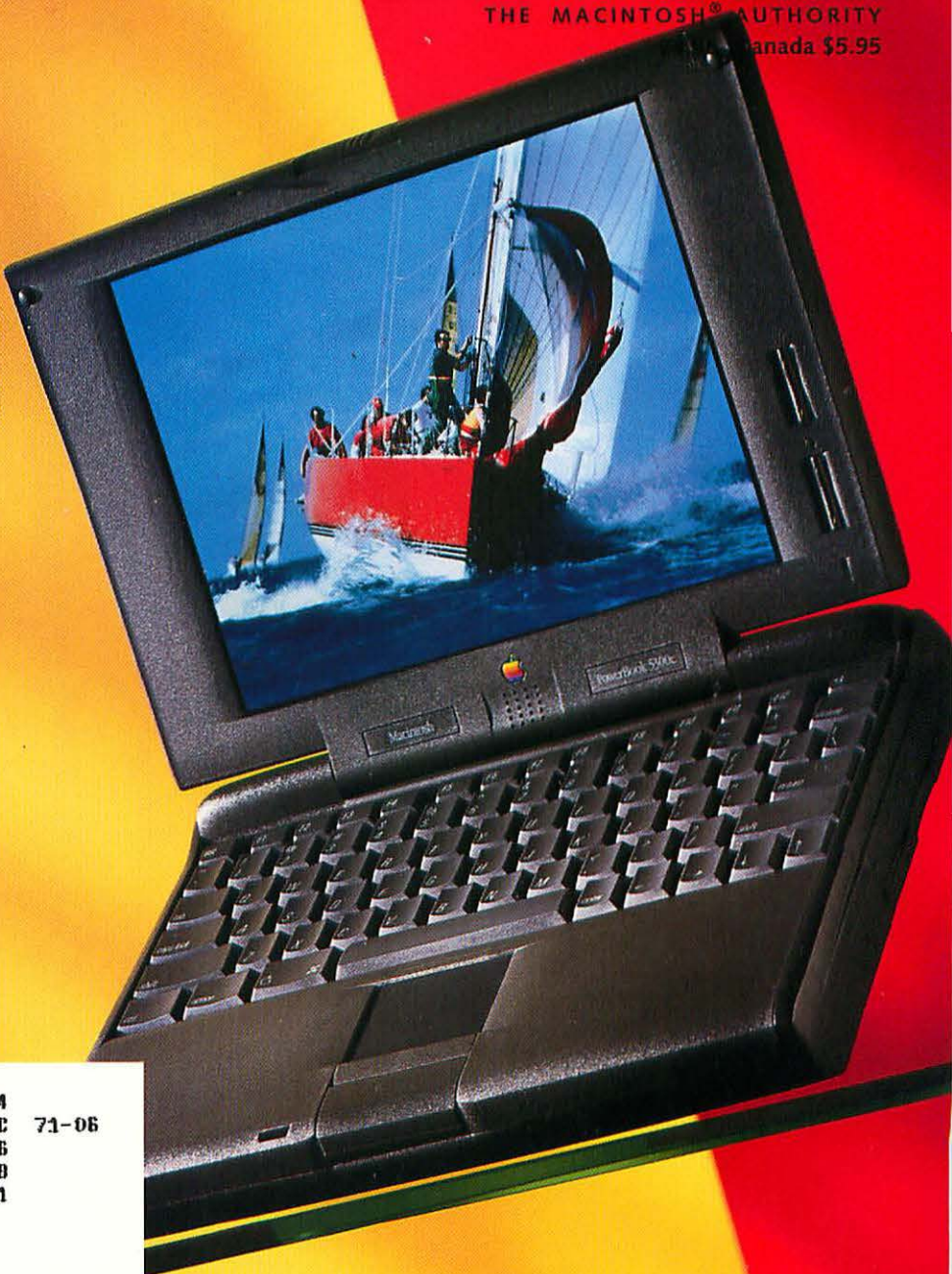
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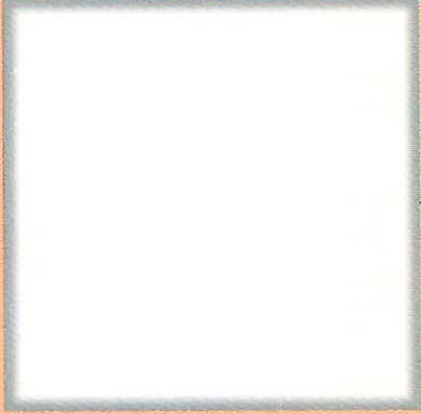
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on the Net, Page 104



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in
here
revelations

happen

YOU
ARE
LOOKING
FOR
ANSWERS

You are on

Your Power Mac.TM

You open

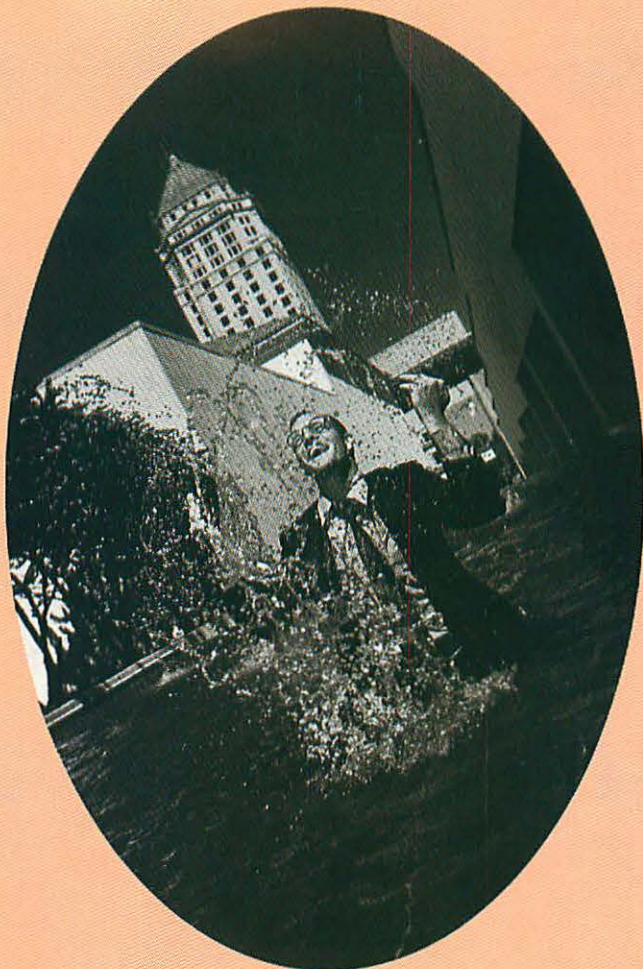
Microsoft® Excel 5.0a.

You begin

With a hunch.

You begin

At zero.



1

You open a worksheet.
You type "Jan."
You use AutoFill
And the rest of the months
Are filled in for you.
Automatically.

3

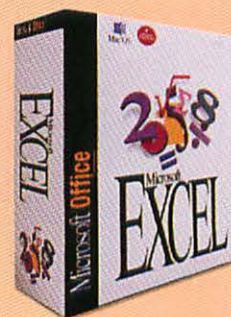
You want to slice
And dice your numbers.
You build a PivotTable®
To see them
From any perspective
You want.

2

You enter numbers.
You click AutoFilter
And the data you want to see
Rises to the top
So you can focus on
What you need to focus on.

4

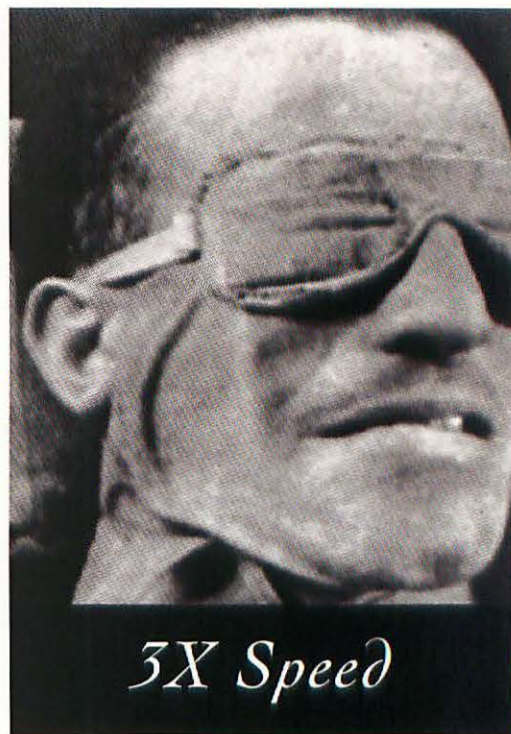
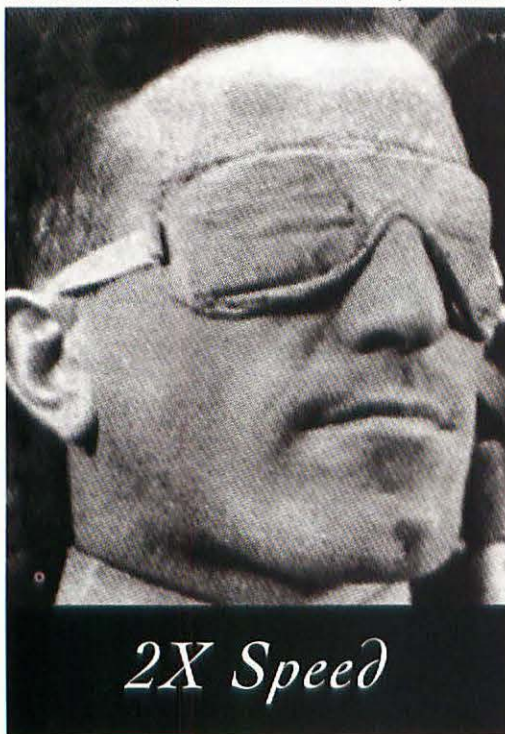
You see
Patterns form.
You come
To understand.
You get it.



Microsoft

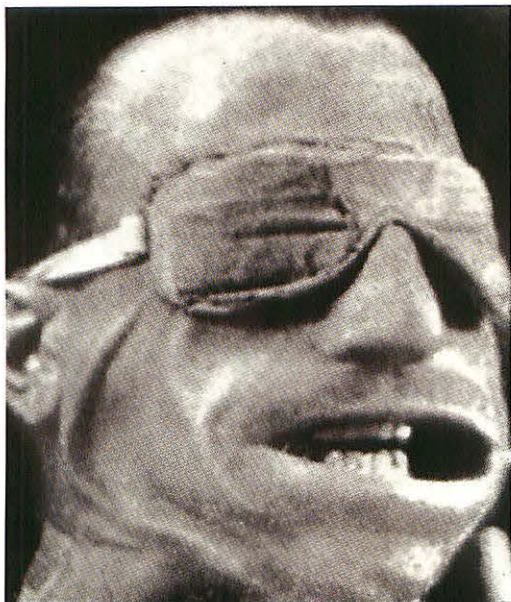
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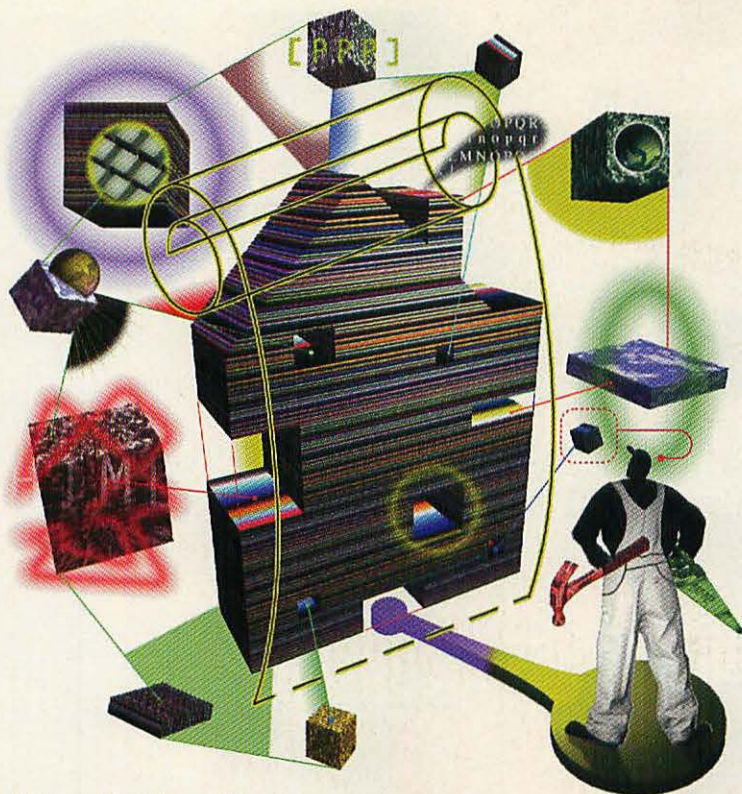
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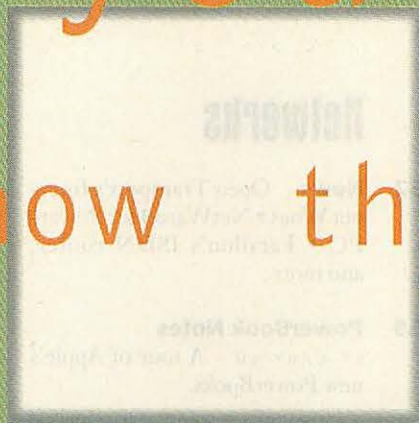


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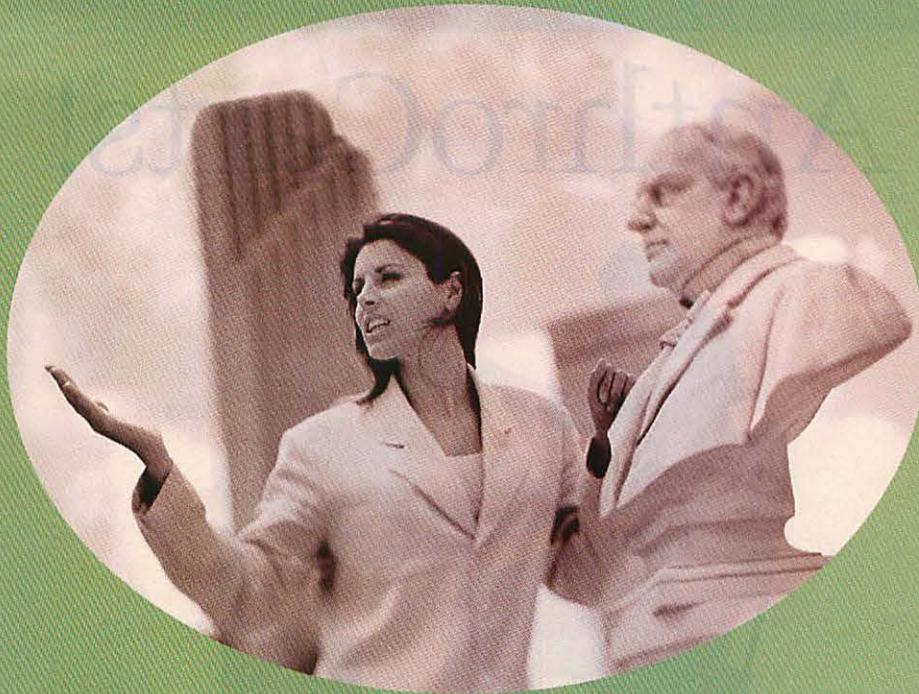
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And texture

And dimension.

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To predict

Questions.

To practice

Your delivery.

To polish

Your timing.

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To your presentation's

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To your presentation's

Look.

To your presentation's

Flow.

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To the way

People see.

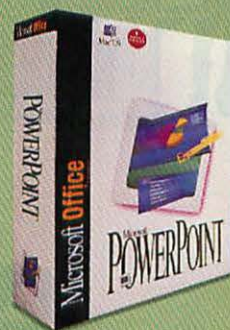
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Their hearts

Are made of stone.



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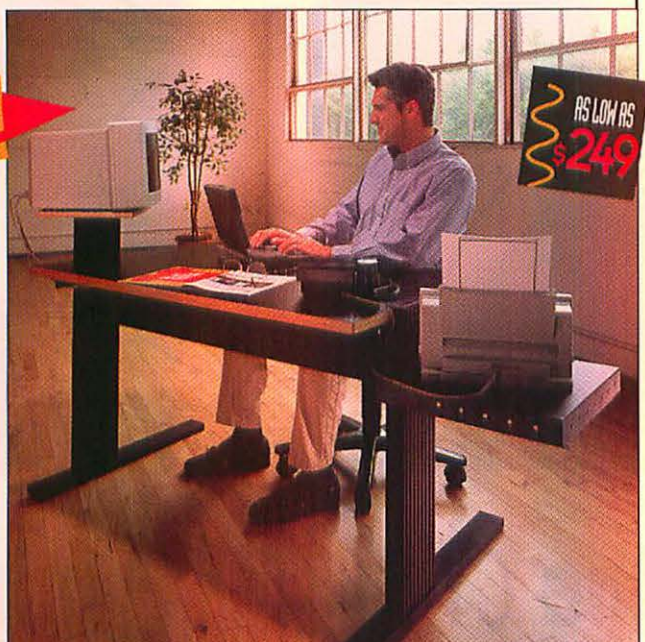
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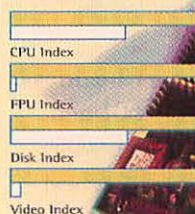
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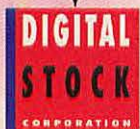
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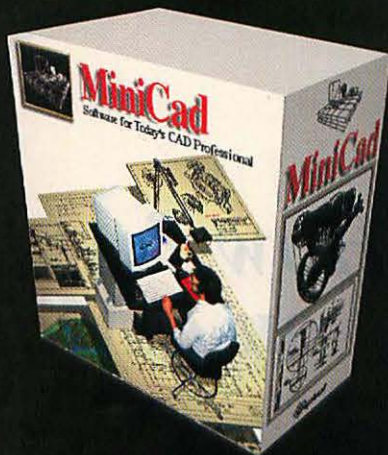
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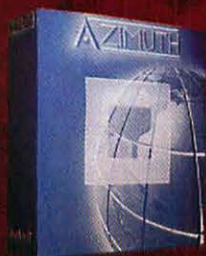
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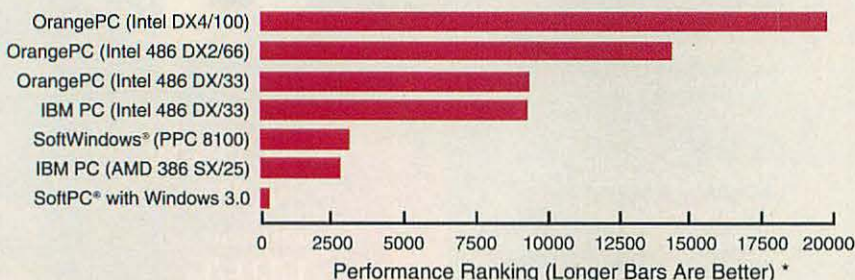
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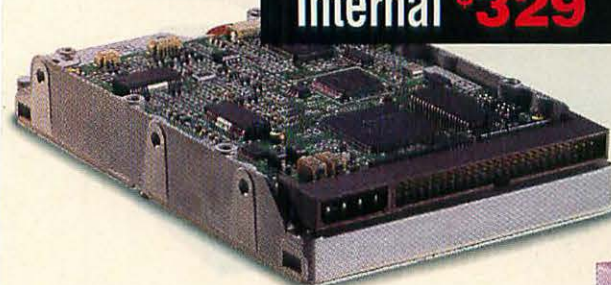
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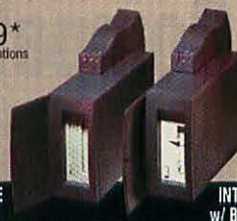
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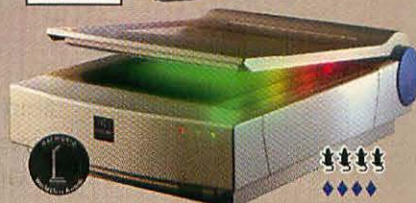
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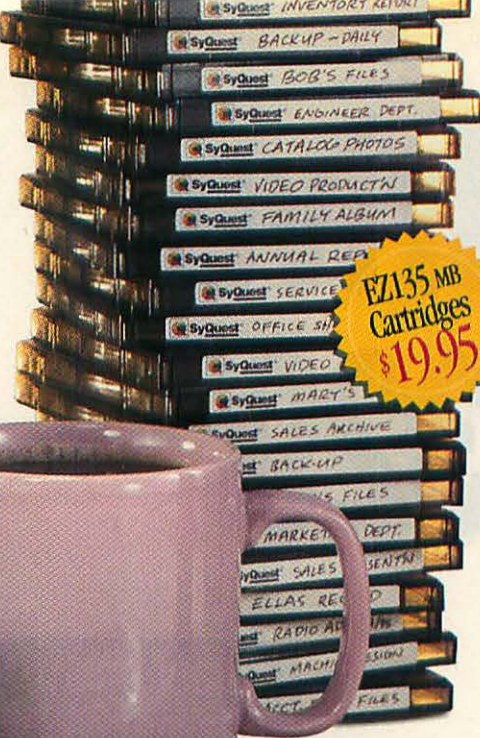


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Circle 52 on reader service card



Reader's Bill of Rights

Taking a stand on ethics in media

THE WAY THE MEDIA GUSHES about Windows 95, you'd think you were witnessing a major revolution in computing. That scares me, but not for the reasons you might think. This latest version of Windows distinguishes itself mostly by incorporating into personal computers features that are now more than ten years old, so it's not the technological threat to the Mac that disturbs me. It's the media's apparent willingness to set aside all critical discernment just to join the party.

Everyone knows that Microsoft has the means to prime the wheels of commerce, but take a look at some of the people who've jumped on its marketing bandwagon. When the Rolling Stones agreed to sell the rights to "Start Me Up" for the Windows 95 ad campaign's theme song—something the Stones have never been willing to do before—I had to wonder, was it just for the money? And what about the venerable *Times* of London? It permitted an advertiser to sponsor an entire issue—much to the chagrin of its editors.

But you should expect better from any type of media that calls itself a journalistic enterprise. To serve the interests of their readers and viewers, who rely on the media to help them make serious choices, journalists must maintain strict standards of independence and objectivity. Marketing and entertainment values so dominate contemporary media that consumers must constantly question them.

Objective: Objectivity

Macworld is committed to providing our readers with trustworthy information on products for the Mac. In addition to protecting consumers' interests, we believe that objective criticism helps improve the products and companies that serve the marketplace, and so we go to great lengths to assure that what you read on our pages is accurate and unbiased. Our writers are among the most qualified and experienced reviewers in the business. The *Macworld* Lab doesn't depend solely on lab simulations and abstract benchmarks; it goes the extra mile to test prod-

ucts with real-world applications so you get a more accurate picture of how products will perform on the job. As a result, we're recognized for our strict, but fair, ratings. And though we try to avoid mistakes, when we do err we correct the record as quickly as we can by printing a correction in our *Letters* section.

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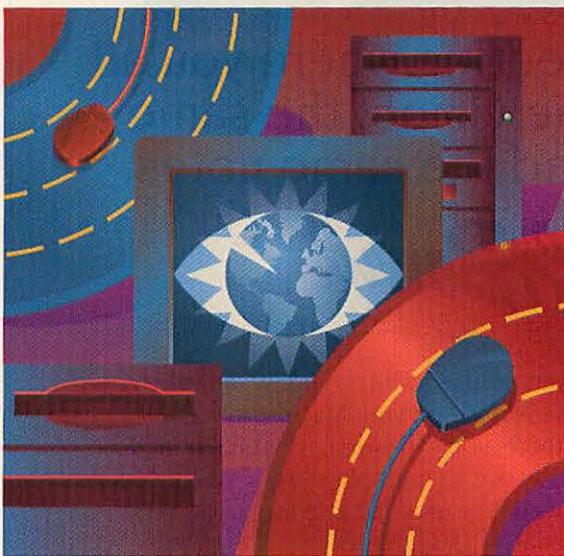
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Bringing a magazine to the newsstand is a complicated affair, involving not only authors and editors, but also people in design, production, advertising, promotion, and so on. Still, *Macworld* maintains a clear differentiation between editorial employees and those engaged in other publishing activities—a distinction not all computer publications observe. For example, some magazines' editors accompany ad-sales staff on calls to vendors. Sometimes these magazines justify it as a way to help vendors understand the magazine's editorial position, but there's a subtext to such sales calls: a company that buys advertising space under such circumstances can expect coverage in the publication.

Macworld's editors don't go on sales calls. Period. Similarly, salespeople do not mediate complaints about editorial content. For example, if a company has a complaint about a review of its products, it must deal directly with the editor; the ad sales representative is not allowed to get involved.

Stocks and Bounds

People are often astonished to learn that *Macworld's* editors are forbidden to buy or sell shares in any of the companies that we cover (owning them through mutual funds or blind trusts is permitted). Don't think we're not envious, too, when we stand by



out precautions, there's a danger that the editorial content could be influenced by the magazine's advertising interests. Readers have a right to ask publications what steps are taken to protect objectivity.

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and watch events such as the meteoric ascent of Netscape's stock. Insider trading—buying or selling securities based on confidential information that does not belong to the trader—is, of course, illegal; but does it follow that computer journalists should not own stock in technology companies? Not all publications share our viewpoint, but because *Macworld's* published opinions directly affect the market value of technology stocks, we believe our trading in these stocks would be unethical.

continues

cal. Besides, it's hard to objectively evaluate products in which you have a financial interest.

Another potential trouble spot is computer journalists who work as paid consultants for software and hardware companies or who write manuals or promotional materials—not an uncommon practice. Should a journalist review a company's products and then receive payment from the same company for other work? Should readers have to wonder

whether reviewers are beholden to product manufacturers? We think not, and our authors do not review products from companies they work for.

I have no idea why anyone would care what kind of long-distance service Can-dice Bergen uses or why Robert Urich favors a particular variety of dog food, but we're accustomed to entertainers' hocking products. Journalists shouldn't do this. We rely on their unbiased expertise to help us make informed choices, and

it's scary to think their opinions can be bought. At *Macworld*, our editors can't make personal endorsements for marketing purposes. And when marketers quote our published reviews, we require that the comments not be misleadingly taken out of context.

Ad Chameleons

Have you ever started reading what looked like an article, only to find out it's an ad in disguise? We don't want our readers to be confused between advertising and editorial in our magazine, so we follow the American Society of Magazine Editors' strict guidelines on advertising supplements. This means we turn down ads that masquerade as articles. Ads also may not emulate *Macworld's* typefaces or design, and our editorial designers can't work on them.

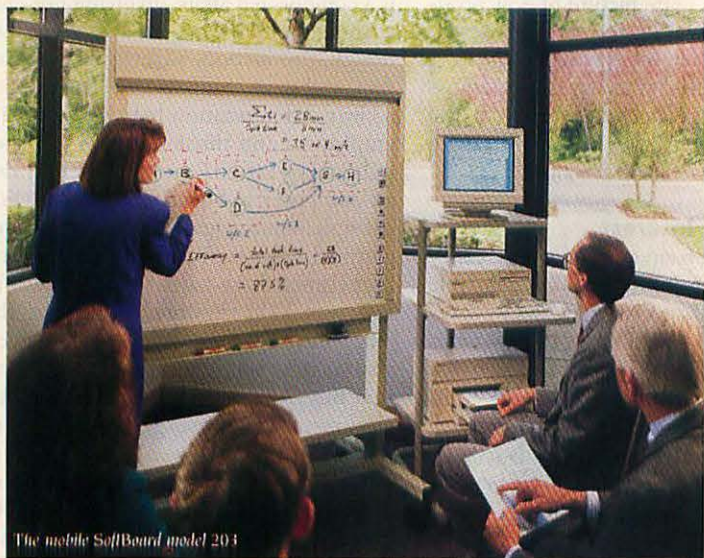
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Now and then we run into potential conflicts of interest that are difficult to avoid. For example, our parent company also owns a book-publishing company called IDG Books Worldwide, and we occasionally write about IDG books we think our readers might find interesting. We strive to give all books the same fair treatment, but even so, we think you have a right to know up front about our relationship to IDG Books Worldwide.

Making the Tough Calls

As much as we value our reputation, occasionally our ethics require us to make painful choices. This issue marks Guy Kawasaki's last column for *Macworld*. For over two years Guy's irreverent wit has been a source of delight for our readers. Guy has always been a Mac partisan, stemming from his days as the most noteworthy of the Mac's early evangelists. Now the old warrior is rejoining the fray as an Apple Fellow, again to champion the Macintosh cause. This is good news for Apple and the Mac, but it means *Macworld* and Guy must now part company.

Consumers need to know what kind of commitment they can expect from those who purport to provide them with independent and objective information. We believe *Macworld's* editorial practices serve our readers well. If you have any questions about these issues, or thoughts about how we can better serve your needs, please drop me a line. **m**



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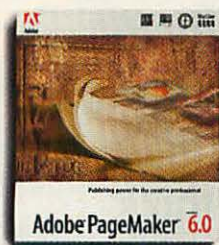
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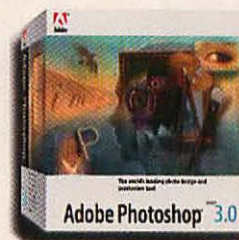


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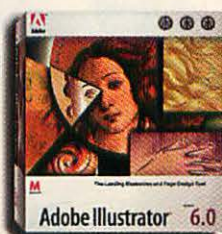


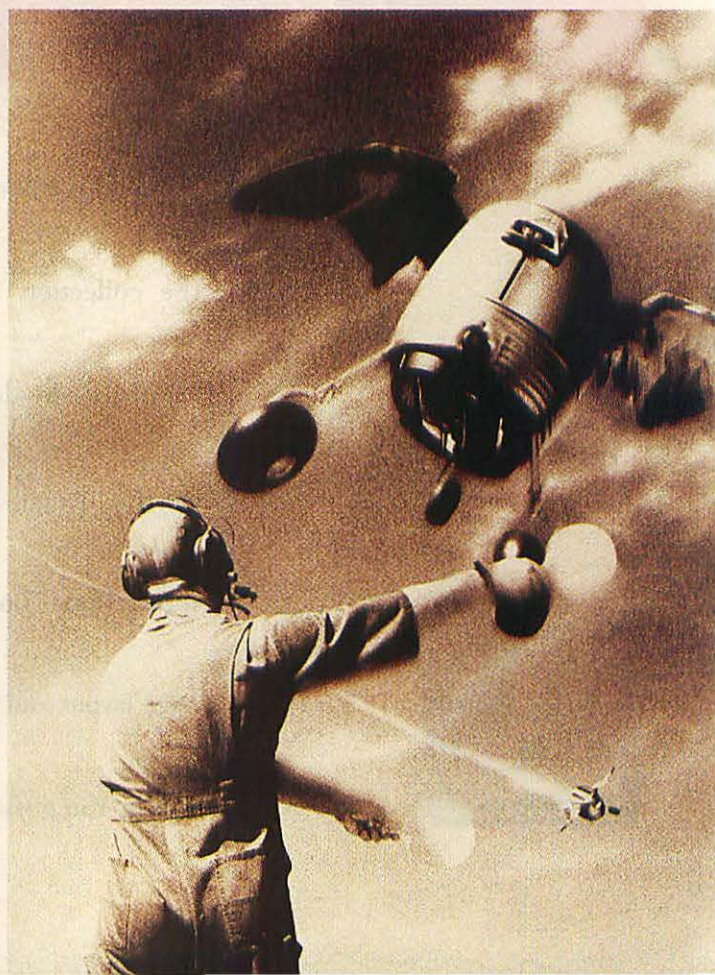
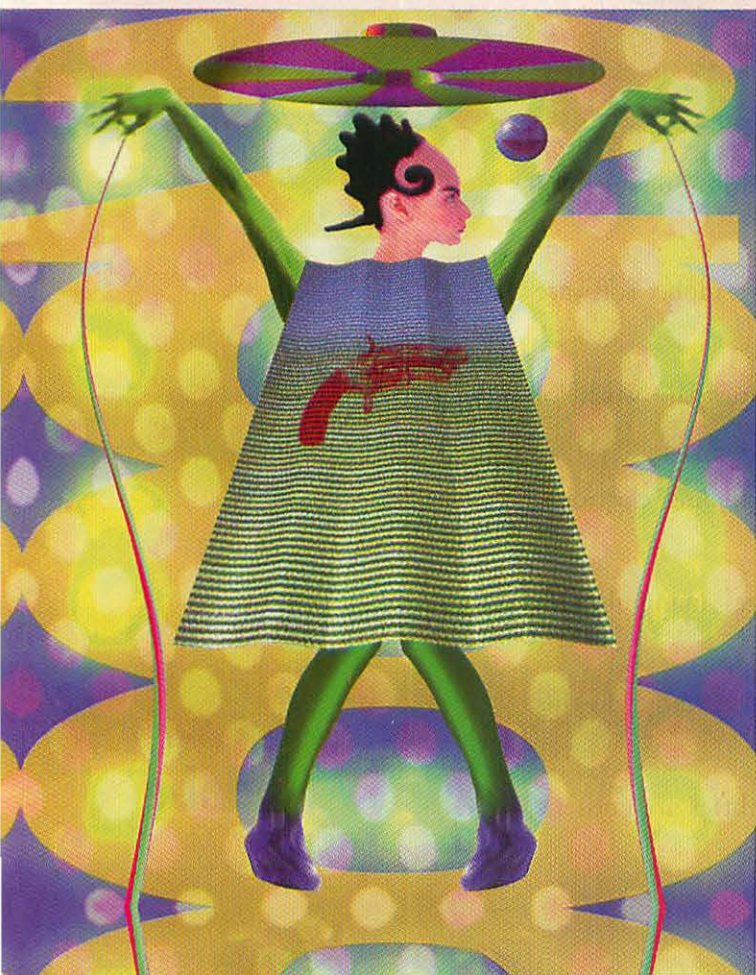
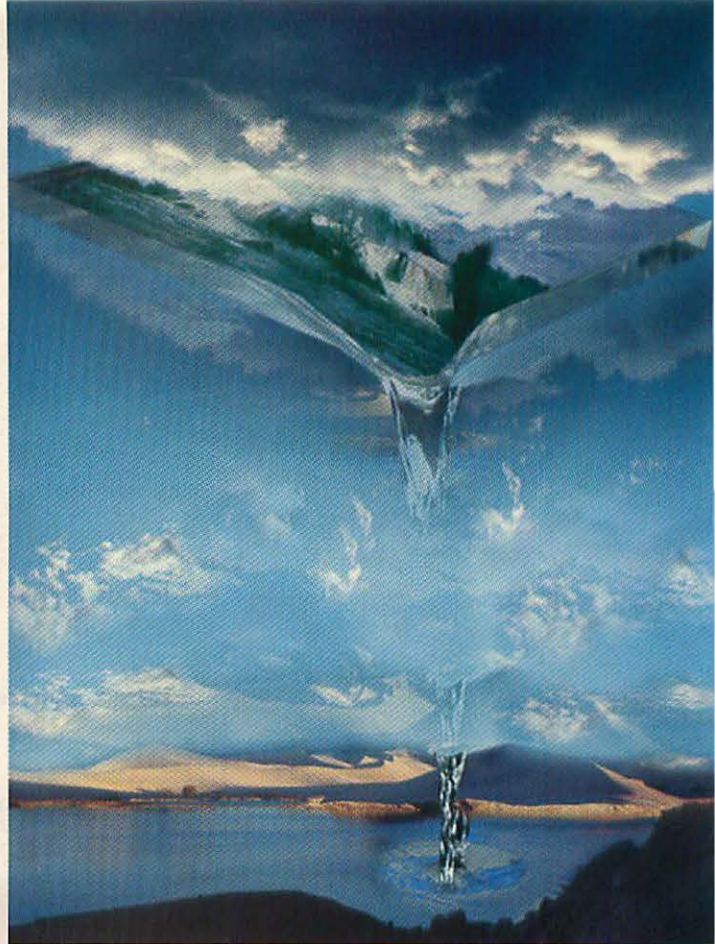
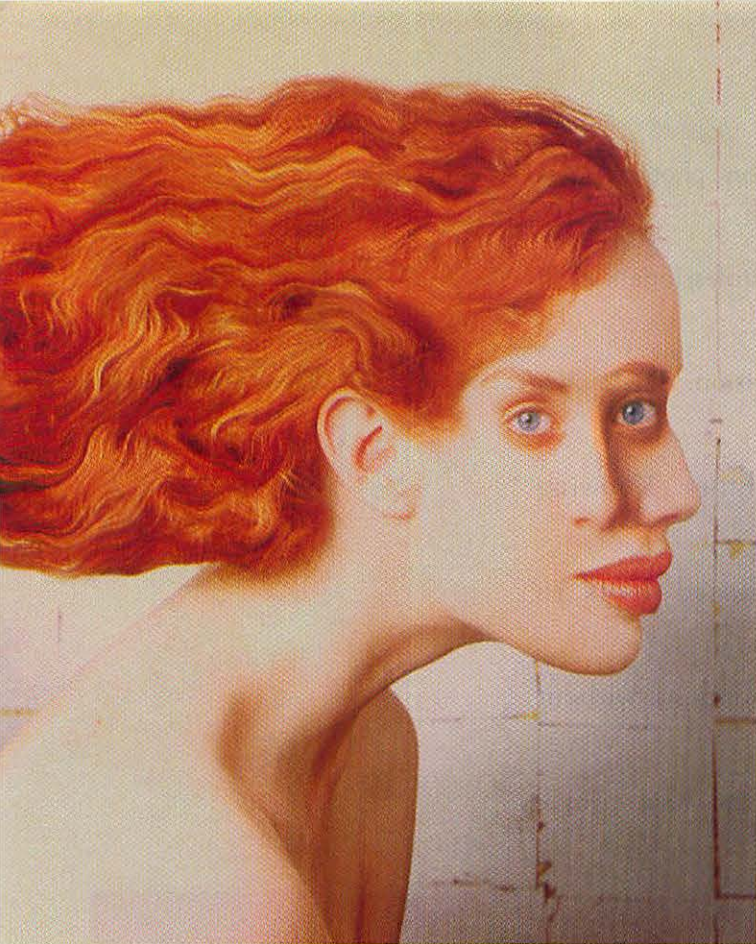
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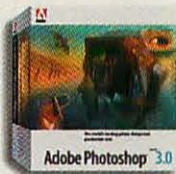


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w a l k h a r d

BY DAVID LILLARD

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on PAGEMAKER 6.0.

lock on a Sunday afternoon and you're finally crossing the last item off
ekend's "to-do" list. Time to get physical, but the gym or a swim won't
o get outside for a walk—not a stroll around the block, or a neon and
ra power push. It's time for rugged walking.

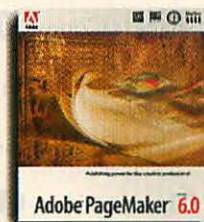
alk tough

observant trend-watcher knows that outdoor activity is booming,
f the boomingest activities is the pedestrian style. But what's only
eing noticed is that a majority of the millions of Americans now
ng active outdoor lifestyles aren't "doing" anything out there. They're
ess they're getting fit and enjoying the great outdoors.
ere in the fitness boom and the outdoor recreation craze,
has slipped the notice of most media," says Robert Hoffman, a
orks on trail and river protection projects.
st people don't want to climb Kilimanjaro or strap walking weights to
ms, but they want to be outdoors after spending the better part of their
week stuck in an office or other indoor setting," says Hoffman. "A
rugged walk in the outdoors *restores mental and
spiritual energy* in a way that counting laps on a track or
steps on a treadmill just can't compare."

> What's more, rugged walking, by definition, removes the
specter of competition that typifies most newer
forms of outdoor activity. For instance,
rock climbing and mountain bicycling,
two of the hottest recent
entries into the outdoor arena, are
about accomplishing bigger and
bigger challenges—a smoother rock face, a
nger ride. No knock against these adventurous sports, but for them it's
shment that drives the activity. For the rugged walker, the
are one in the same. Challenging terrain is embraced and enjoyed,
s no requirement.
actly, is rugged walking, and what's making it so popular? Two words

Mike Salisbury uses Adobe™ PageMaker™ to create designs so powerful they've become part of our collective consciousness. Layouts for Rolling Stone magazine, posters for Jurassic Park and Aliens, and Michael Jackson album covers bear his imprint. Now there's a radically new Adobe PageMaker 6.0 upgrade. "The interface is so natural, it never interferes with my ideas", says Salisbury,

"and this new version is really over the top. I'm getting dead-on color from start to finish because it's locked into Kodak's Precision Color Management System." Hot new features include multiple master pages to streamline the creation of different page designs in a single publication; grouping and



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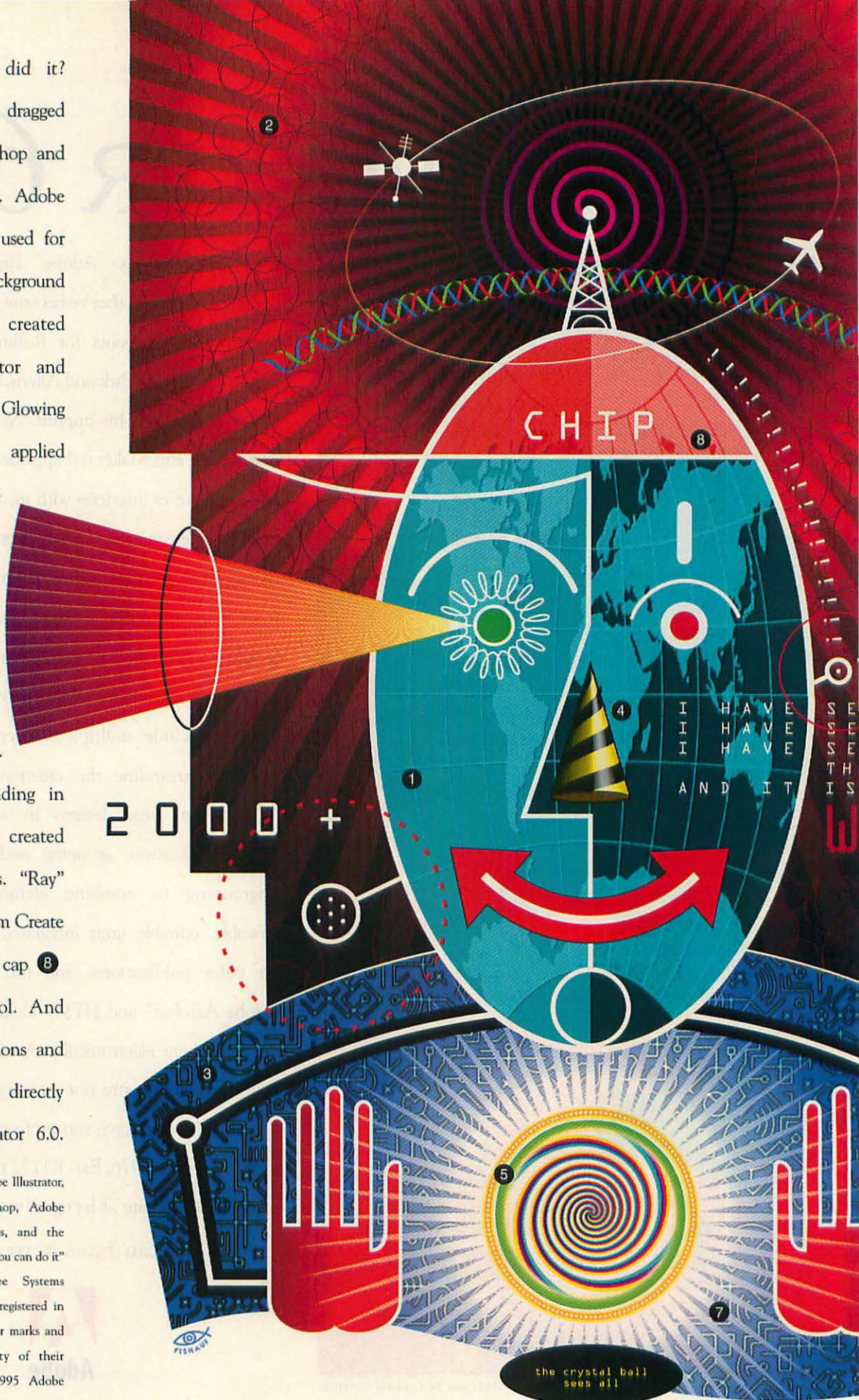
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Wonder how we did it? Globe map ① is dragged from Adobe Photoshop and dropped into place. Adobe Gallery Effects™ is used for embossed look. Background pattern ② is created in Adobe Illustrator and rasterized in place. Glowing Edges filter ③ is applied and masked into shape. Cone ④ is created using Adobe Dimensions. The twirl ⑤ effect comes from a Photoshop plug-in.

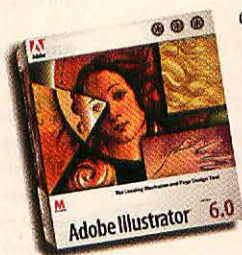
DNA tail ⑥ ending in the "o" for boy created with Path Patterns. "Ray" effect ⑦ comes from Create Star filter. Chip's red cap ⑧ cut using knife tool. And by the way, separations and printing were done directly from Adobe Illustrator 6.0.

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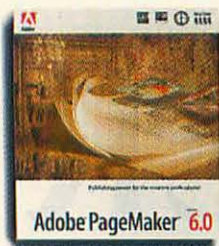
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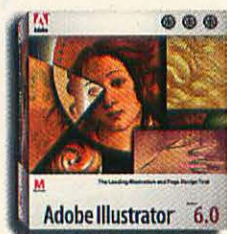


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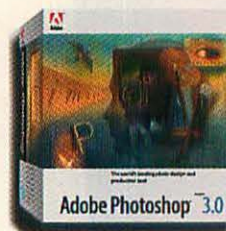


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Letters

Get in Gear, Apple

THE AUGUST ISSUE OF *MACWORLD* devotes not one but two articles to Mac clones, which are not only key to expanding Apple's mind and market share but are also crucial in defining Apple's business strategy. While Adrian Mello's *State of the Mac* forcefully advocates a damn-the-torpedoes approach to licensing the Mac OS, Charles Piller's interviews with executives of potential clone companies in "Is Apple Serious about Clones?" suggest that Apple's willingness to forge ahead with cloning may be "halfhearted."

Apple's disappointing short-term cloning effort, however, should not obscure the fact that Apple remains fully committed to its cloning strategy. First, the talks between IBM and Radius indicate that even small companies can become big players by leveraging the manufacturing and distribution facilities of larger firms. Second, Apple appears to be using Power Computing as a conduit for porting its technology to other clone makers such as Olivetti. This strategy allows Apple to off-load much of the burden of transferring its specialized know-how to other licensees. Third, by design and not by chance, Apple's pro-cloning factions came out on top in Apple's latest reorganization. Finally, Apple (along with IBM) remains online with CHRP (Common Hardware Reference Platform), which would allow an unlimited number of players to jump into the Mac cloning business without wasting months negotiating contracts with timid Apple bureaucrats who have little experience in or, it seems, inclination toward finalizing cloning licenses.

Joe Demetrius
Greensboro, North Carolina

YOUR STATE OF THE MAC EDITORIAL and Charles Piller's feature are both great! As you know, I fully agree with the position *Macworld* has taken and appreci-

ate *Macworld's* strong stand on the importance of licensing to Apple and the overall Macintosh community, as well as the need for a sense of urgency.

Radius has been virtually 100 percent Mac-focused for its entire nine-year history. Licensing has kept us, as a third-party developer, from taking our technology to the Windows platform. Now, as a licensed system vendor, we are very excited about the prospects for a larger and more diverse Macintosh market.

The only thing I would add to your editorial is, Support the current licensees and ensure their success. It will be difficult for others to follow if the pioneers die on the trail. Radius has lined up an impressive list of partners to back our efforts, but as Mr. Piller correctly points out, success cannot be achieved without the proper level of support from Apple.

Thanks for boldly taking a stand on an issue fundamental to all of us for success in the Macintosh market.

Charles Berger
Chairman and CEO,
Radius
Sunnyvale, California



What's a Gamer to Do?

YOU CAN PLAY THAT ON A MAC?" IN the August issue (*News*) very accurately outlines the state of Mac gaming and its current problems. I find the attitude of David Swofford (media relations manager of Origin) quite representative of the PC gaming establishment's opinion in deciding whether or not to develop for the Mac. Game developers are understandably hesitant about committing resources without first testing the waters. The trouble with this thinking, however, is that they are using *Super Wing Commander* as their test ground, thinking that if this title doesn't do well, why should they bother with others?

Unfortunately, the logic is faulty. Porting a year-old game and expecting Mac gamers to jump is ridiculous, especially when quality games like *Marathon* and *Dark Forces* are here now. The former game shows that a Mac-only development company can be a success, and the latter that a PC company can make a Mac product and be well received. My advice to Origin and other game developers is, if you want to test the Mac waters, concurrently develop Mac and PC versions of a game so we don't feel like we're getting leftovers.

The PowerPC offers an incredible platform for game development, but Mac gamers are not desperate—we will *not* buy a game for the sake of buying. Convince us. Produce a quality product and the sales will come in droves—just ask Bungie Software or LucasArts!

Adam Newman
via CompuServe

We Know What You Mean

I COULD REALLY RELATE TO GUY Kawasaki's column in August (*Wise Guy*). I was once installing a 12-disc CD changer and deck in my car when I inad-

CORRECTIONS

■ **Conflict Catcher 3.0.2** ("System 7.5.2 Fixes," News, October 1995) can be downloaded for free from AOL, eWorld, and CompuServe (casady). Registered users with a Power Mac 7200, 7500, 8500, 9500, or System 7.5.2 can get a set of 3.0.2 disks and manual for free; otherwise they're \$15. Quark's phone number was listed incorrectly and should be 303/894-8888.

■ **Sonnet Technologies and Dynamic Engineering** offer PowerPC upgrades for the Duo 280/280c and the 500-series PowerBooks (PowerBook Notes, September 1995).

■ **Several errors** appeared in "The Split-Personality Mac" (September 1995). Personal MacLAN Connect won't work with Windows 95 (a Windows 95 version of Personal MacLAN Connect is scheduled to ship in September).

The Power Mac logo in the "Software Options for Windows on a Mac" table should be next to SoftWindows 1.0 and 2.0 for Power Macintosh, not next to SoftWindows 1.0 for Performa and Timbuktu Pro 1.04 for Macintosh.

On a Power Mac 7100/80, SoftWindows 2.0 runs at less than 25MHz 486SX speeds.

vertently shorted out the stereo. The very first thing that popped into my head was, Hey, no big deal, just undo. Wouldn't that be nice?

Two months later the CD changer wouldn't eject the cartridge. I tried everything to get it out. After close inspection I realized there was a tiny hole below the cartridge door the size of a paper-clip tip. Naw, I thought, it couldn't be that simple. Sure enough, I pushed a paper clip into the hole and out came my cartridge. So I guess thinking with a Mac frame of mind has its ups and downs.

Joe Krout
via America Online

Dear What?

THE "PICKING NITS" LETTER IN August's *Letters* reminded me of an incident that happened not too long ago. I was consulting with a new computer user and had brought a file compressed with Now Utilities. While the file decompressed, I explained that I had to do this because the file was too big to fit on a floppy and QuickFiler let me squeeze more data onto the disk, but that we had to decompress it before she could use it.

About halfway through the process, she pointed at the message on screen and said, "But why do they call it dear chiving?"

Matthew Strange
via the Internet

Black and White

THANK YOU FOR YOUR ARTICLE about digitizing video ("Advanced AV Options," August 1995). Believe it or not, though, some of us are interested in digitizing only black-and-white video. Does this less-demanding requirement significantly change the assessment of the Apple and Radius products reviewed?

I have looked everywhere for a discussion—nay, the merest mention of this topic—and have not found one.

John Sotos
via the Internet

We haven't tested video products in black-and-white. For more information, try the Video Interest Group (Video Sig) on America Online.—Ed.

Dealing with DOS Disks

JIM HEID'S INFORMATIVE ARTICLE ON DOS disks (*Working Smart*, August 1995) omitted one additional fact to keep in mind: a formatted double-density disk holds up to 800K worth of Mac files, but formats to only 720K in DOS. High-density disks provide 1.44MB of storage capacity for both operating systems.

Chris Bastian
via the Internet

Hands Ahoy!

DAVID POGUE'S PIECE ON THE JOYS of voice dictation rightly points out the value and increasing maturity of a new technology (*The Desktop Critic*, August 1995). In his case it was a replacement for the keyboard, at which he had apparently injured his arms.

My concern is that Pogue said nothing about what he did to remove the cause of his injury. In my work doing ergonomic consultations, I see much misuse of the keyboard. People are stretching or clawing the fingers, bending the wrists in all directions, hitting the keys with extreme force, and typing in postures that put extra strain on tissues and the body in general. They are generally unaware of what their hands are doing, keying from pure habit. I also find that few people know how to adjust their chairs, at the expense of further protection from risk.

continues

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*Test conducted on a Power Macintosh 8100/100AV for PowerCADD 2.0 and a Macintosh Quadra 630 for PowerDraw versions.



Macworld October 1995

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MacWEEK July 10, 1995

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InfoWorld July 24, 1995

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All of this is usually easy to change, so Pogue's injuries were likely preventable. PowerSecretary—a product I use and support—and the other tools he mentioned are best seen for their contributions to productivity rather than as fixes in response to injuries that shouldn't be allowed to happen in the first place.

Gary Karp
via the Internet

THE MOST REASONABLE SOLUTION for David Pogue and others experiencing some kind of stress injury from typing is not an expensive and complicated voice-transcription technology. People could probably return to their keyboards for a lot less money and headaches by using the Dvorak Simplified Keyboard. Every new typist, like my daughters in elementary school, should be offered the Simplified alternative.

Dvorak, however, found out that it is hard to teach new tricks to lazy dogs or even quick brown foxes. Fortunately, the computer keyboard allows us to be of both persuasions, QWERTY and Dvorak, though monogamously so. Simple, inexpensive modifications can make your computer dual-capable. Overlay keyboard stickers with the Dvorak and QWERTY keyboard visible in different colors and sizes can be purchased at minimal expense from HooLeon, among others. For more information, contact Dvorak International, a nonprofit, international organization dedicated to promoting the Dvorak layout, at dvorakint@aol.com.

William Grassie
via America Online

Tough Times for Pioneers

I AM WRITING IN RESPONSE TO JIM Heid's "First of a New Breed" in the August issue. Heid concludes his article by espousing the plight of the first-generation Power Macintosh users. I agree that first-generation pioneers, as Mr. Heid calls them, should not be left out on a limb without any of the "enhancements" prevalent in second-generation Power Macs. Many loyal Macintosh users have spent their money in good faith and in confidence by purchasing the original Power Macintosh model line. Why doesn't Apple return the favor and offer the system enhancements of 7.5.2 to these buyers? I think Apple should seriously consider making system software improvements readily available to those who truly support Apple and the Power Macintosh.

Brian Bray
Porterville, California

Little Orphan Anarchie

JOANNA PEARLSTEIN'S REVIEW OF Snatcher 1.0 (August 1995) surprised me. She leaves the impression that Snatcher and Fetch are the only affordable Macintosh FTP (file-transfer protocol) clients. Anarchie 1.5 is a terrific, well-supported, \$10 shareware FTP client by Peter Lewis.

In addition to supporting multiple, simultaneous connections and file transfers, Anarchie has the ability to browse while downloading, and it offers useful scripting features like those in Snatcher; Anarchie also comes with an excellent Apple Guide, houses a terrific interface, and supports powerful Archie searches of the Internet. Best of all, free upgrades appear frequently on the Internet.

I have never used Snatcher, but I was once a frequent user of Fetch. Anarchie is simply much, much better. I encourage *Macworld* editors and readers to strongly consider it when looking for affordable, powerful FTP clients for the Macintosh.

Jeremy Smith
via the Internet

We could have mentioned Anarchie and its agreeably excellent features, but its support of the Archie protocol differentiates it from Fetch and Snatcher. We don't like to compare guavas and grapes. For further discussion of FTP software, see "Make the Right Connection," in the October 1995 issue.—Ed.

Fish On

MY WIFE AND I WERE RELAXING ON the beach at Boca Grande recently, watching 60 entry boats compete in the world's richest Tarpon Tournament. Scanning the field with my binoculars, I spied the Wise Guy! Could it be that your Mr. Kawasaki was away from his desk long enough to compete for the \$100,000 first prize? A faithful reader of his *Wise Guy* column, I was wondering how he was going to explain this absence from his newfound responsibilities at Apple.

Larry Lessard
Englewood, Florida

Letters should be sent to Letters, *Macworld*, 501 Second St., San Francisco, CA 94107; via fax, 415/442-0766; or electronically to CompuServe (70370,702), MCI Mail (294-8078), America Online (Macworld), eWorld (Macworld), AppleLink (Macworld1), or via the Internet (letters@macworld.com). Include return address and daytime phone number. Due to the high volume of mail received, we can't respond personally to each letter. We reserve the right to edit all letters. All published letters become the property of *Macworld*. **m**

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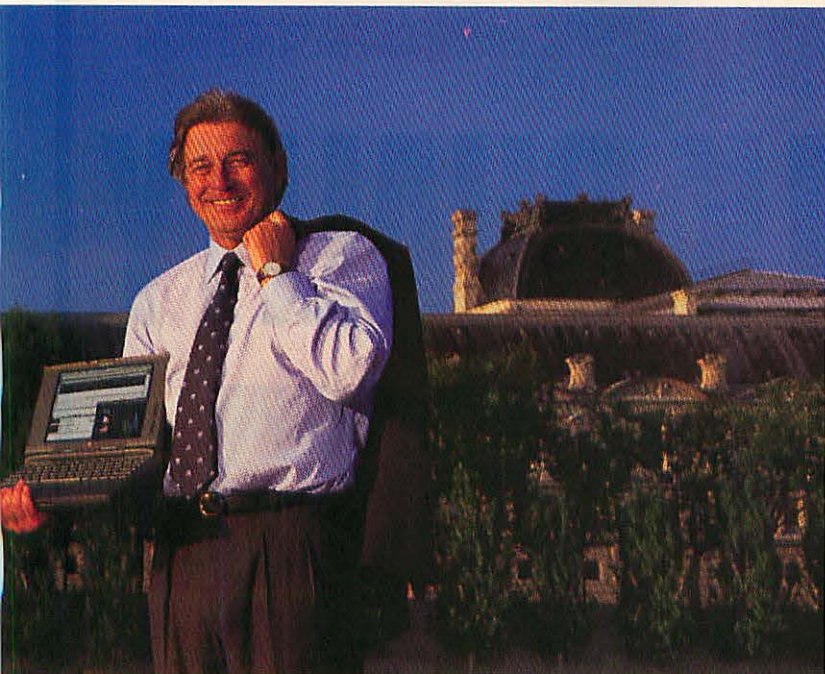
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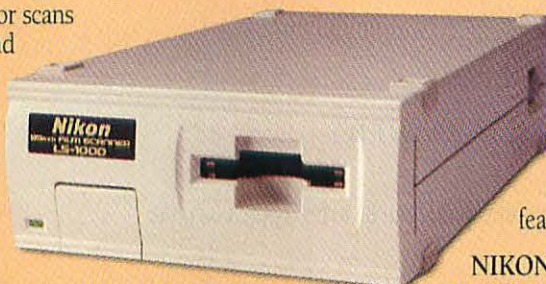
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MacBulletin

⦿ **Ars Longa, Power Brevis**

Refrigerator art will never be the same if your kids get their hands on the new multimedia Power Macintosh 5300/100 LC from Apple (408/996-1010). The \$2399 PowerPC-based multimedia workstation is available only for students and educators. Based on the all-in-one Performa 5200 design, the 5300's built-in multimedia technologies include a video-out connector, a video-capture card, a TV tuner, and 16-bit stereo sound-in and -out ports. Because it uses the relatively slow PowerPC 603e, the 5300/100 should be about as fast as a 601-based Power Mac 6100/66. If you don't have a student or an educator in your household, don't despair. LC models tend to show up as Performas a few months later at Sears, Circuit City, and other retailers.

Cyber Copyrights Urged

The Clinton administration recommends changes to bring copyright law in line with current technology. A presidential study group, in a report titled *Intellectual Property and the National Information Infrastructure*, says "the nation's growing computer communications system would not flourish without safeguards against theft."

The report recommends classifying electronic transmissions of documents and other materials as copies, thus including them under copyright law. Also recommended: prohibiting the manufacture or distribution of any device that would circumvent electronic tags used to protect copyrights on networks.

More Merger Mania

Maybe we sound like we're repeating ourselves, but there are more mergers of note. This continues the trend toward consolidation in the computer industry.

Macromedia of San Francisco, owner of the popular FreeHand, a design and illustration tool for the Macintosh and Windows, will acquire Fauve Software of San

Francisco. Fauve is the developer of xRes, a full-featured image-editing application for Mac and Windows PCs. The deal is a stock swap valued at \$14 million.

By the time you read this, Brøderbund Software of Novato, California, and The Learning Company of Fremont, California, will in all likelihood have merged. Brøderbund develops Mac and Windows software titles for homes, schools, and small businesses. It is best known for its immensely popular Carmen Sandiego series of educational programs. The Learning Company publishes educational titles for both platforms. Under the merger agreement, expected to be completed by the end of October, The Learning Company will continue to operate under its name as a wholly owned subsidiary. Brøderbund paid the equivalent of \$440 million in stock.

Dayna Communications of Salt Lake City, a leading maker of Macintosh Ethernet adapters, has sold its remote-access products group to Ascend Communications of Alameda, California. Dayna says the sale, for an undisclosed amount, will allow it to concentrate on the Macintosh LAN market. The remote-access group makes DaynaLink, a PC Card (formerly PCMCIA) fax modem-based server for Apple Remote Access clients.

Companies Unmerged

Boca Research of Boca Raton, Florida, has abandoned its plan (reported in *MacBulletin*, September 1995) to buy Hayes Microcomputer Products, of Atlanta. Hayes, once the leading computer-modem maker, has been operating in Chapter 11 bankruptcy since November 1994. The deal would have created the third-largest modem manufacturer. Boca Research says it stopped negotiations when it heard that Dennis Hayes, the company's founder, chief executive, and largest shareholder, was continuing to talk to other suitors. Hayes confirms that he is talking to other suitors but says he's still willing to negotiate with Boca. **m**

News

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The Mac's (Bigger) Share Online

How's the Macintosh faring in the hottest new computer trend—online services and the Internet? Recent surveys and market reports show it's doing well.

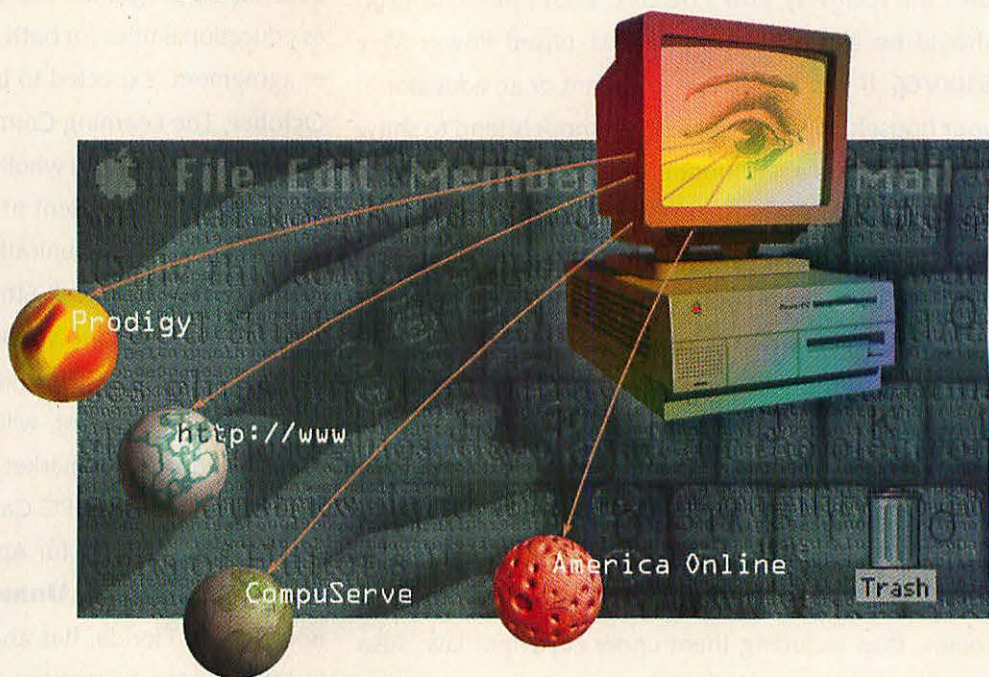
The Mac's share of the personal computer market is typically estimated at 8.1 percent by International Data Corporation, but the numbers shake out differently if you break down the market by application. In desktop publishing and multimedia development, for example, the Mac has far more than 10 percent. On the three major online services, the Mac's share varies considerably (see the chart "Mac's Online Presence," on page 43). CompuServe says 16 percent of its members use Macs, 76 percent use PCs, and 8 percent use a terminal interface. Prodigy reports only 5 percent using Macs. America Online (AOL) does not quote its platform breakdown, but knowledgeable people estimate 25 percent Macs and 75 percent PCs; in its 1994 annual report, AOL listed 28 percent Macs, 72 percent PCs. The origin of these differences is largely historical. Prodigy is partly owned by IBM and has promoted itself more heavily

to the PC side of the market; its software has probably been the least Mac-like of all commercial programs. AOL started out as AppleLink Personal Edition, a joint project of Apple and Quantum. Apple sold its interest to Quantum, which renamed the service. For the big three services, the overall shares work out to 16.4 percent for the Mac, 80.9 percent for the PC, and 3 percent for others, adjusted for the rel-

ative number of subscribers.

As for the Internet, graduate student Jim Pitkow, of the Graphics, Visualization, and Usability Center (GVU) at the Georgia Institute of Technology, has conducted three widely publicized surveys of World Wide Web users. The Web is the hottest area on the Internet because it has interactive graphics and sound; older areas, such as newsgroups and Gopher sites,

operate with a text interface only. The Gvu April 1995 questionnaire yielded 13,006 responses. From the standpoint of platform count, the Gvu survey was distorted by two factors. First, 3532 responses came from Prodigy subscribers because the survey appeared on Prodigy's Web home page. At the time, Prodigy offered Web access only to its Windows subscribers, so naturally the



HEIDI MERSCHER

Prodigy responses reflected a Windows bias. Without the Prodigy data, the Mac share goes up to 36 percent versus 63 percent for PCs. This high proportion for the Mac was driven in part by several online Mac publications and newsgroups that urged Mac users to fill out the questionnaire. The PC-based online publications did not do the same; in any event they don't have the wide readership or clout of the Mac publications. Computer Intelligence InfoCorp surveyed 10,700 personal computer users and found that 18 percent of Mac users had Internet access compared with about 9 percent of PC users.

There's another way to get platform statistics: When someone browses a Web site and downloads files, the Web server can identify the type of browser used and usually the platform. The eclectic Asylum home page draws 21 percent Macs; home pages produced by Point of Presence in Seattle for various commercial clients draw 19 percent Macs. On the Web server side—computers used to supply information to the Web—Macs have a strong position, with a 20.8 percent share, according to the GVV survey; Unix remains the leader for servers, while Windows has been off to a slow start.

Overall, the figures show that Macs are used for the major commercial online services at about twice the proportion of their installed base. And a higher proportion of Macs browse the Internet than visit the commercial services. As Internet services have added graphics and multimedia, the Mac has become the platform of choice for many software developers. Internet tools have been available on the Mac for years; a full set of tools for Windows arrived only this year. Apple has responded to the Mac's popularity on the Internet by offering Macs packaged as Web servers and developing Internet links for its forthcoming OpenDoc shared-tool system.—CARY LU

A Preview of Ceneca's Hot Web Tools

BREAKS NEW GROUND IN ONLINE PUBLISHING

Everyone wants to be on the Web, but no one yet has a really good way to get there. Companies like Adobe and Quark are stumbling over themselves to adapt their products to handle HTML (HyperText Markup Language), but their solutions have been filters and plug-ins that don't really address the needs of this new medium. The pages that are created by these standard programs are largely static, forcing the Web's round peg into print's square hole.

Enter Ceneca Communications (415/842-6810), a start-up run by escapees from the Taligent project at Apple. They've built a pair of Web authoring tools from the ground up, tailoring the features to the needs of the medium. PageMill is the basic program that allows WYSIWYG creation of Web pages, outputting standard HTML files that will run on any Web server. SiteMill includes all the features of PageMill and adds Web site-management tools. *Macworld* took a look at an early release of these tools, and we're cautiously optimistic about what has been called the PageMaker of the nineties.

Using a simple Macintosh interface and saving files to a local hard drive, PageMill enables authors to create individual pages, forms, and clickable images in an environment that hides the HTML tags that have discouraged designers and nontechnical authors. PageMill's features

are as easy to use as a word processor's, and the program turns out clean and efficient HTML that follows the 2.0 HTML standard set by the IETF (Internet Engineering Task Force). Ceneca says that the next version will support the 3.0 HTML standard, including tables and other refinements. PageMill offers drag-and-drop image placement from various sources (even the Clipboard) and changes PICT files to the standard interlaced GIF format, including support for transparent GIF files.

While PageMill handles placement and image linking nicely, would-be Web masters still need to work with a sepa-



Ceneca's new PageMill and SiteMill are being called the PageMaker of the 1990s.

rate image-editing tool, Photoshop or DeBabelizer, to reduce files to sizes that are standard on the Web.

Writing individual HTML pages is only the first step in creating a Web site, and people running commercial sites will want the management tools that SiteMill adds to PageMill. Managing a Web site's multiple pages and myriad links to and from those pages is a nightmare. Broken links and missing pages have to be painstakingly repaired one link at a time.

SiteMill addresses these problems by creating a minidatabase of the site. The structure of your Web site appears as a window that displays your pages with pop-up menus of the links to and from each file. As you link pages within your site, that database stores the relative links, updating them when you make *continues*

CD-R Gets Simpler

Optima Technology (714/476-0515) has shipped the \$1850 DiskKover 650CDR with CD-R Access software, which lets you add files to a recordable CD-ROM by dragging files to the CD's desktop icon—as if it were a floppy disk. Other CD-R software requires you to create a list of files and folders or to create a separate hard-disk partition that you then copy onto the recordable CD-ROM. To read the CD-ROMs, people need a special driver from Optima, available via online services for free or by disk for \$19.

DayStar Pumps Up 9500's

Not satisfied with the single puny processor in your new Power Mac 9500? Then step up to burly, four-processor power with DayStar's (404/967-2077) Genesis conversion kit. For roughly \$10,000 (price not final at press time), you can take your 9500 to an authorized Genesis dealer who will pull your mother-board and internal drives, replace your PowerPC 604 CPU with a four-processor Genesis card, and slap the whole mess into a Genesis case with a beefed-up power supply. The upgrade comes with DayStar's multiprocessing software and Photo extensions to take advantage of the newfound power.

QuickTime 2.1 Music to Users' Ears

Listening to Internet sound files just got easier, thanks to the latest version of QuickTime (2.1) and Sound Manager (3.1), available as a package for \$9.95 from Apple (408/996-1010). Users can now directly play WAV and AU files, and audio performance has been increased on Power Macs, leaving more processor cycles for smoother video. QuickTime 2.1 also has goodies for developers, including a sprite toolbox and sprite track for easily adding character-based animations to movies.

changes and alerting you when there's a problem.

More important, you can drag and drop the elements in this window onto text or images to create links within the authoring environment. For sites larger than one or two pages, SiteMill should help solve many important site-management issues.

Remember that both products are in their first version. Also bear in mind that you'll still need to wrestle with an Internet server to put these pages on the Web. But Ceneca's tools are miles better than any of the other Web authoring tools available, and the open standards strategy is good for the Web as a whole. Combine PageMill and StarNine's WebStar server software, and the Mac is poised to take the lead in the fledgling Internet publishing world. It's an auspicious beginning for this small start-up company.

—MATTHEW HAWN

Portable Drives Get Faster

MAGNETO-OPTICAL, RAID REPLACE TAPE, OPTICAL

Prepress artists and multimedia developers, our usual data-hogging suspects, often juggle two or more multigigabyte projects at once. In the past they had to shuffle jobs between expensive but speedy fixed-capacity hard drives and high-capacity but poky removable-media devices such as tape and optical drives. Now a new generation of drives aims to combine the speed of hard drives with the portability and expandability of removable storage in a single low-cost device. Prices start at \$500, and the drives' performance



High-capacity removable media, like these Jaz-based drives from Iomega, are becoming less expensive and faster.

ROBERT FERRY

promises to meet the demands of almost all users, including demanding PhotoShop and video editors.

Pinnacle Micro's (714/727-3300) proprietary Apex 4.6GB magneto-optical drive has 17ms seek times and real-world data-transfer rates of up to 4.5 MBps. Most MO drives erase existing data and record new data in separate operations. Apex combines

these two steps into one by directly writing new data over old. Pinnacle says the performance gain and low price per megabyte justify the nonstandard format, and the company hopes to strike OEM deals that allow secondary sources to develop. The Apex drive, which should be available by the

time you read this, will cost \$1695 with one 4.6GB cartridge. Extra cartridges will cost about \$200 each.

Iomega (801/778-1000) crams 1GB into each 3.5-inch cartridge of its Jaz removable drive. The drive, built with a Winchester technology similar to that pioneered by SyQuest, delivers a 12ms seek time and sustained data-transfer rates of better than 3.5

SPECIAL REPORT

First Add-Ons to New PowerPC PowerBooks



The new PowerBook 5300, 2300, and 190 series give Mac notebooks a new level of expansion capability, and several companies have already

announced expansion options for this latest generation of PowerBooks. (For details on the new PowerBooks themselves, see the feature "PowerPC Portables," elsewhere in this issue.)

You can expand the new PowerBooks in five ways, but not all

models have each option: via PC Card slots (formerly PCMCIA slots); via an expansion bay similar to that in the PowerBook 500 series; via a new type of Processor Direct Slot (PDS) card; via a docking station; and via standard Mac ports such as serial and SCSI.

Because the PowerBooks are so new, many companies had not finalized prices or names as we went to press.

PC Card Options

All the full-size notebooks have PC Card slots, although the new subnotebooks do not. PC Cards designed for the 5300 and 190 should also work with a 500-series PowerBook that has Apple's \$220 PC Card expansion device.

• Farallon Computing (510/815-5100) will offer several Ethernet options via Type II PC Card cards. The Ether-

Wave PowerBook PC Card (\$249), which can be daisy-chained, connects to any 10Base-T network or lets you create an ad hoc, hubless network by linking EtherWave adapters connected to PowerBooks, Macs, PCs, and printers. The EtherMac PowerBook PC Card-TP 10Base-T adapter (\$199) lets you connect a PowerBook to a hub-based network. The EtherMac PowerBook PC Card-C (\$249) has 10Base-T and thin Ethernet connectors. All three cards support AppleTalk, TCP/IP, SNMP, and IPX.

• Dayna Communications (801/269-7200) will offer an Ethernet card, a fax modem card, a card that combines Ethernet and a fax modem, and a wireless LAN card in its CommuniCard line. The \$199 Ethernet card has 10Base-T and thin Ethernet

connectors; the combination card (price not set) adds a 14.4- or 28.8-Kbps fax modem (prices are company estimates). The \$550 wireless card uses a 1-inch-square antenna to communicate with DaynaComm Network Access Point transceivers for wireless Ether-



Farallon's Ethernet card (top) and Megahertz's fax modem card work in the new PowerBooks.

ROBERT FERRY

MBps. The company expects Jaz drives to be available by the time you read this for \$500. Extra 1GB cartridges will cost about \$100 when bought in groups of five.

Need even higher performance? ProMax (714/727-3977) has announced two RAID Level 0 arrays built around the Jaz drive. The 2GB \$1295 PR2-2000 system combines two Jaz drives to deliver about 8MB of data per second when connected to a fast SCSI accelerator or to an 8100's dual SCSI ports. A 4GB four-drive system, the PR4-4000, will move 10MB per second with an accelerator and will cost \$2595.

SyQuest (510/226-4000) says it plans to introduce a product similar to the Jaz in the first half of 1996. The company declined to offer specifics. Each company says it plans to offer even higher-capacity drives in the future.

—JIM FEELEY

Apple Hedges Its OS Bets

SYSTEM 7.5 IS READIED AS BACKUP TO COPLAND

Faced with likely delays in finishing the next-generation Macintosh Operating System, code-named Copland, Apple is hedging its bets by porting System 7.5 to the new system platform, the Common Hardware Reference Platform (CHRP), being jointly developed with IBM. CHRP systems will be able to run the Mac OS, OS/2, IBM's AIX variant of Unix, and Microsoft's Windows NT. Apple originally spoke only of having Copland as the Mac OS version planned for CHRP, but the company has designed its CHRP systems to work with Copland and System 7.5 and is porting System 7.5 to the new platform at the

THE AmCoEX INDEX OF USED MACINTOSH PRICES		
Machine/RAM/Hard Drive	Average Sale Price	Monthly Change
PowerBook 140/4MB/40MB	\$600	\$0
PowerBook 165/4MB/80MB	\$1000	-\$25
PowerBook 180/4MB/80MB	\$1275	-\$25
PowerBook Duo 230/4MB/80MB	\$700	-\$50
Mac IIsi/3MB/40MB	\$275	\$0
Mac IIci/4MB/80MB	\$550	+\$50
Mac IIfx/4MB/80MB	\$475	\$0
Centris 650/8MB/230MB	\$1025	-\$50
Quadra 800/8MB/230MB	\$1200	-\$75
Quadra 900/8MB/160MB	\$1125	+\$50
Power Mac 7100/66/8MB/350MB	\$1800	-\$200
Power Mac 8100AV/8MB/500MB/CD	\$2800	-\$300

Index provided by the American Computer Exchange of Atlanta (800/786-0717). It reflects sales during week of August 20. Configurations include keyboard and exclude monitor and display board for noncompact models.

same time it is porting Copland, according to Jim Gable, Apple's licensing director for CHRP. Although System 7.5 for CHRP has been in the works at Apple since CHRP was agreed to in November 1994, even IBM was unaware

of this parallel work. Gable says that System 7.5 for CHRP may be ready by mid-1996. That would enable Apple to meet its goal of having the Mac OS available for use on CHRP systems by the end of the 1996—even if Copland is delayed.

While David Nagel, Apple vice president, says the Copland development effort for the current Macintosh architecture is only two days behind schedule, engineers and officials at several other Mac companies say that Copland is several months behind. The first CHRP systems should be available for other operating systems in mid to late 1996 from companies such as IBM and Motorola.

Limited Copland for 680X0 Apple has also decided not to make Copland run on 680X0 Macs, with or without PowerPC upgrade cards. The new OS will run only on systems from Apple, Radius, Power Computing, and DayStar that have a PowerPC on the motherboard, according to Vito Salvaggio, Apple's group product marketing manager for Copland. Users of 680X0 systems will be offered a user-interface replacement that provides most of the interface enhancements being planned for Copland, such as multiple modes (for beginners and advanced users), active assis-

net access. The 14.4-Kbps fax modem card is \$270, the 28.8-Kbps version is \$415.

- **Newer Technology** (316/685-4904) will offer several cards, including fax modems (one model has a cellular plug-in for Motorola cellular phones), the EtherTech P10 10BaseT Ethernet card, and flash-memory cards (in various capacities up to 40MB).

- **National Instruments** (512/794-0100) plans to make several PC Cards for data acquisition, so scientists and engineers using its LabView scientific-instrumentation software can gather results from test equipment in almost any location.

- **Quadrant International** (610/964-7600) is offering a videoconferencing package that combines Intelligence at Large's (215/387-6002) Being-There software and Quadrant's video-input PC Card hardware. The bundle should cost less than \$700. A desktop

Mac would need the \$299 Being-There software; a QuickTime 2.0-compatible video-capture device; and a network, Internet, or modem connection to the other Macs and PowerBooks.

- **VST Power Systems** (508/287-4600) will ship the \$449 Airplex Mac 14.4-Kbps fax modem Type II card that can attach to a phone line's RJ-11 jack or make a wireless connection, via an included infrared adapter, to a modem pod that attaches to the phone line. Using the \$149 IR Base Transceiver, you can use the modem without having the PowerBook attached to the phone wire.

- Any PC Card designed for the PowerBook 500 series will work with the 5300. These include fax modems from Angia Communications (801/371-0488), Apex Data (510/416-5656), Apple Computer (408/996-1010), AT&T Paradyne (813/530-2000), Dayna (801/269-7200), Epson



Fujitsu's DynaMO 230 Portable drive for the PowerBook 5300.

America (310/782-0770), U.S. Robotics (708/676-7010) and its Megahertz subsidiary (801/320-7000), Memory International (714/453-8008), Multi-Tech Systems (612/785-3500), Newer Technology, Simple Technology (714/476-1180), and TDK Systems (916/265-5395); cellular modems from Motorola UDS (205/430-8000); flash-memory cards from Newer and SanDisk (408/562-0500); and hard drives from Epson, Mini-

continues

ROBERT PERRY

tants that help automate tasks, and a customizable desktop (see "The Mac's Jazzy New Face," *Macworld*, July 1995). The interface will also include updated networking software to maintain compatibility with PowerPC-based Macs running Copland. (PowerPC upgrades will not be compatible with Copland because the OS will require certain controllers found only on Power Mac and clone motherboards, Salvaggio says.)

While Apple has never committed to porting Copland to 680X0 Macs, earlier this year officials said a 680X0 port of Copland was likely six or so months after the Power Mac version was completed. However, the 680X0 does not have the processing power needed to support Copland's core architectural improvements, such as preemptive

multitasking, and Apple engineers decided to port just the interface and basic interoperability components to 680X0. With Apple releasing its last 680X0 Macs this year, Mac buyers will have about a year to switch to Power Macs if they want the full advantage of Copland.—GALEN GRUMAN

Building on V.34 Modems

MORE CAPABILITIES THAN 28.8-KBPS TRANSMISSION

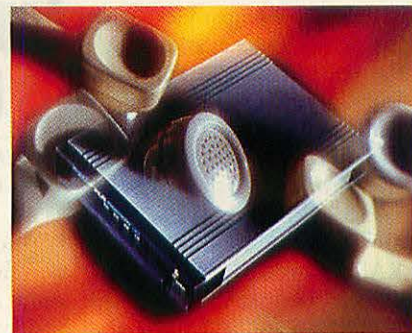
V.34 modems running at 28.8 Kbps push the speed limits for information transfer over ordinary telephone lines. Yet you can still expect innovations in modem development. In fact, several

new capabilities will arrive in the coming months—with a catch: except for Caller ID and voice mail, all these features work only if they're present in both sending and receiving modems.

- **Higher speed.** AT&T has a proprietary tweak to the 28.8-Kbps V.34 modem standard for a modest gain to 33.6 Kbps and possibly somewhat higher speeds.

- **Faster fax.** Late this year, the first fax modems and fax machines supporting V.34 modulation will raise the top speed between compatible fax devices from 14.4 Kbps to 28.8 Kbps.

- **Cellular calls.** MNP 10EC, a revision of the MNP



Fax modems will soon offer higher speed, voice capability, and other special features.

10 protocol, corrects transmission errors in cellular-phone calls. But you won't see much utility in this protocol until cellular phone-service providers include it in their modem pools.

- **Caller ID.** Many modems can already process Caller ID information, which provides the caller's phone number while an incoming

SPECIAL REPORT

"First Add-Ons to New PowerBooks," continued

Stor Peripherals (408/943-0165), and Simple Technology. Note that many modems designed for PC notebooks' PC Card slots may work with the Mac's PC Card slots as well.

Expansion-Bay Options

Both the PowerBook 5300 and 190 series have expansion bays for floppy drives that can be used for other devices. The 2300's have no expansion bay.

- **VST Power Systems** (508/287-4600) plans to offer removable hard drives (in capacities of 500MB, 810MB, and 1.2GB) that pop into the bay and can work as external drives. VST will also offer two power adapters that fit in the expansion bay. One, for about \$200, will be AC power only, while the other, about \$250, will support multiple-voltage AC and DC for use abroad or with car or boat cigarette lighters.

While the PowerBooks come with an AC adapter, having an adapter that fits in the expansion slot means you have one less thing to lose on the road. And VST's adapter can work as an external adapter, so you can use it and the floppy drive or another device in the expansion bay. Newer Technology (316/685-4904) plans to offer a similar product. VST will also offer the \$299 VST Charger 5000, which recognizes lithium-ion and nickel-metal-hydrate batteries. VST will later offer a less-expensive charger for lithium-ion batteries only.

- **Fujitsu Computer Products of America** (408/432-6333) plans to offer in January the \$499 DynaMO 230 Portable 230MB magneto-optical drive for use in the 5300's expansion bay.

PDS Options

The 5300-series PowerBooks come with a video card for external video

hookup in their PDS slot, although you could have a dealer put in a different card. The 190 has no card in its PDS, and the 2300's have no PDS.

- **Newer Technology** (316/685-4904) plans to release a 16-bit video card for the 5300 series to increase its video-out resolution from the standard 8 bits. The card should also work with the 190.

- **Focus Enhancements** (617/938-8088) plans a \$299 video card with 1MB of video RAM for 16-bit color on 17-inch monitors. A \$399 version will also have a 10BaseT Ethernet port. It may seem weird to have a video card that is also an Ethernet card, but it actually makes a lot of sense: you won't misplace your network card if it's permanently inside your PowerBook.

Docking Options

The 2300's use the same docking-station design as

their predecessors, so these options also should work with the Duo 200 series. The other new PowerBooks don't support docks.

- **Newer Technology** (316/685-4904) plans to offer the PC Card ComboDock, which will include two Type II PC Card slots, and connectors for SCSI, ADB, and audio in/out. The ComboDock can itself be expanded to include a 10BaseT Ethernet port and 16-bit video-out port. Newer will also offer the PC Card MicroDock, a smaller version that has just a PC Card slot and an ADB port. Newer also plans to release the DOS ComboDock, which includes a 66MHz 486DX2 motherboard, as well as ADB, SCSI, floppy, audio, and VGA video-out ports, so you can turn your Mac sub-notebook into a PC notebook. That dock will have an option for 16-bit Mac video-out port.

—GALEN GRUMAN

call rings. But software to deal with Caller ID is not yet standard with such modems, and not all states allow Caller ID information to be transmitted.

- **Voice mail.** About half the modems shipping at the end of this year will have voice-mail capabilities that turn a computer and modem into an answering machine and voice mailbox (a few modems have had such features for several years). Hardware in the modem digitizes the telephone audio for storage on a hard disk. Some modems will include echo-canceling circuits to turn the computer into a speakerphone. But again, not all will come with software to support the voice features.

- **Call negotiation.** The V.8 standard, built into all V.34 modems, defines a streamlined and faster way for modems to negotiate a connection. Until now, when two modems connected, the answering modem responded with the first tone. But if the calling modem were to initiate the connection, the answering modem could route the call correctly. V.8 fixes

this problem by having the calling modem initiate the sequence with a distinctive tone—in the manner of a calling fax machine—getting rid of several steps.

- **TDD compatibility.** The new V.18 standard, which is likely to arrive in 1996 modems, will finally give mainstream modems compatibility with TDD (telephone device for the deaf, also called TTY) in all common formats used worldwide.

- **Sequential voice and data.** The Radish VoiceView protocol defines a chirp sound as a cue to switch between voice and data in the same phone call. For this type of switching to work, the telephone must be connected through the modem. Some uses might include technical-support calls: after you explain your problem, the support person could switch to data briefly to get data directly from the Macintosh and then switch back to voice to explain your problem. The switching takes less than a second. About a third of modems shipping at the end of 1995 will likely have VoiceView.

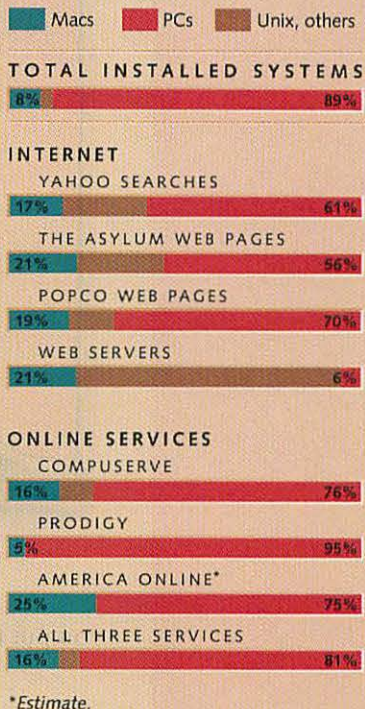
- **Simultaneous voice and data.** You will have the ability to talk and exchange data—for example, you can share screen images—at the same time on a single phone line with a confusing variety of protocols. The main standard is DSVD (digital simultaneous voice and data), and it should arrive by the end of 1995. Most DSVD modems will also include VoiceView, but the reverse will not be true because the hardware necessary to digitize voice for DSVD will add to a modem's cost. DSVD runs on top of V.34; both voice and data travel in packets with variable data rates. The companies developing DSVD have split on two incompatible ways to digitize voice; commercial modems may have both methods in ROM, adding more to the cost. Meanwhile AT&T has been promoting VoiceSpan, which combines analog voice with 4.8-Kbps to 6-Kbps digital data using the V.32bis protocol common to most modems. VoiceSpan (also called the V.61 protocol) costs less but is incompatible with DSVD (also called the V.60 protocol). And modem maker Multi-Tech has an older, all-digital but pre-DSVD technique for the same function.

- **Voice, data, and picture.** The ITU (International Telecommunications Union) Study Group 14 oversees the DSVD protocol. The separate Study Group 15 is developing a videoconferencing standard called H.324; this standard is based on the V.34 modem standard. H.324 supports a tiny 120-by-96-pixel image at 8.33 frames per second, and it will also include a simultaneous voice and data protocol

that is incompatible with DSVD. The cost of adding a video camera to the computer system will delay the adoption of any videoconferencing standard, so the DSVD protocol is likely to be established in the marketplace before H.324 becomes an important issue. Rockwell, which supplies modem chip sets for 70 percent of all modems sold, plans to include all these features in its premium chips (although less-expensive modems may not include all features). Among modem makers, U.S. Robotics (708/676-7010) and Prometheus (503/692-9600) have recently released or plan to release modems with some of these capabilities, and you can expect everyone else to follow suit. Note that not every feature will be supported by the software bundled with modems, and you may have to buy additional software to use special features.—CARY LU

Mac's Online Presence

A look at who's online shows that there are more Mac owners than you might expect given the Mac's share of all systems in use. In some categories figures do not total to 100 percent because of other platforms in use, such as Unix. Data was gathered from a variety of industry sources.



BUGS & TURKEYS



Values fail to update upon recalculation in Microsoft Excel 5.0 when a formula is placed in a cell adjoining the right side of a table. Microsoft confirmed the bug, stating that the workaround is to insert a column between the table and the cell containing the formula. The company will attempt to provide a fix in a future version of the program.



A Thanksgiving gobbler for Radius (408/541-6100), who not only released its 1.1 fix for the Spigot PowerAV QuickTime 2.0 incompatibility with System 7.5 four months late, but also released software that doesn't work on Power Macs (1.1 works only with the 680X0 Mac 840AV and 660AV). Radius is giving no date for when a Power Mac-compatible version will be available.



ClarisWorks 4.0 is out, but the filter to save files as 3.0 or even 2.0 documents is not. Claris promises a filter; the upgrade will be posted online, and will be available from Claris for shipping charges only.

Macworld will send you a Bug Report T-shirt if you are the first to inform us of a serious, reproducible bug that we report in this column, or a Turkey Shoot T-Shirt if we shoot your turkey in this space. See *How to Contact Macworld*.

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SCANNERS



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fly, so much the better. So when

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Power Mac News

Windows NT's Challenge

POWERPC-BASED PCs
OUTPERFORM POWER MAC

When Microsoft released Windows NT 3.5.1 for PowerPC in June, it marked the first time that Apple had mainstream competition for the CPU jointly developed by IBM, Motorola, and Apple. And sadly, Macworld Lab's results show that even a 100MHz PowerPC 604-based PC is faster than a 132MHz 604-based Power Mac 9500 (see "PowerPC Showdown: Mac versus Windows NT").

Systems using IBM's PowerPC Reference Platform (PReP) design aren't yet shipping, but they will be available this fall, mainly for high-powered Unix workstations. When those systems ship, chances are they'll run Windows NT, because IBM's OS/2 for PowerPC is far behind in its development.

The Microsoft Effect Although the comparison between a PReP system running Windows NT and a Power Mac 9500/132—the fastest Mac ever—is discouraging, it's

important to understand a few hidden factors. One is the Microsoft effect: Microsoft's Mac versions of both Word and Excel perform poorly on Macs compared with how they perform on Windows-based PCs. That's because Microsoft ports the Windows version to Mac, bringing a lot of overhead that slows down performance. Unfortunately, these two programs are popular on the Mac, so many people are getting a reduced performance from their Mac.

The Emulation Legacy Another factor is the remaining 680X0 emulation in System 7.5; some operations, particularly those involving disk access, are slower on a Power Mac than on a 680X0 Mac or on a PC.

Macworld Lab comparisons of Power Macs and Pentium-based PCs have shown that the two platforms remain roughly comparable in performance (see "New 9500 versus PCs," *Power Mac News*, August 1995) despite Apple's initial promise that PowerPC-based Macs would leave Intel-based PCs in the dust. Faster Pentiums and greatly improved PC motherboard designs have helped keep these PCs competitive, while slowdowns in the Mac OS because of 680X0

emulation, plus the Microsoft effect, have helped keep the Mac's PowerPC engine from being fully used.

Share the Blame But not everything can be blamed on Microsoft and 680X0 emulation: even in tests that examine raw computation perfor-

hardware design that slows down the PowerPC: the Mac OS runs at the same speed on an Apple Mac as on a PReP PC. That leaves the Mac OS as one likely key bottleneck and Microsoft's (and some other companies') slower Mac software versions as the other.

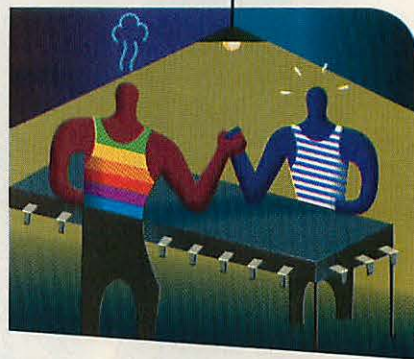
Apple's goal in the next major Mac OS release, code-named Copland and due by early 1997, is to change that (see "The New Mac OS Unveiled," July 1995).

Real Progress

If you compare the NT-based tests with *Macworld's* previous Pentium PC-based tests, it's clear that

the PowerPC CPU is faster than the Pentium—just as Apple, IBM, and Motorola promised. Unfortunately, the Mac is not getting the full advantage of that power.

But it's important to remember the situation just two years ago, before the first Power Macs shipped. Then, a 66MHz 486DX2-based PC cost much less than the fastest Quadra and was nearly twice as fast. Apple has gone a very long way toward reducing the gap.—GALEN GRUMAN



mance—both for integer and floating-point calculations—the Windows NT-based PReP PCs outperform the Power Mac. The slowest NT-based PC tested was faster than the Power Mac 9500 in these tests, in spite of the fact that the 9500's 132MHz CPU is 32 percent faster than the CPU in the slowest NT PC tested.

Macworld Lab tests of the Mac OS on the PReP PCs (see "Apple Says No to IBM's Macintosh," *News*, October 1995) show that it's not the Mac



PowerPC Showdown: Mac versus Windows NT

Shorter bars are better. All times in seconds. Products are listed from fastest overall to slowest overall.

Microsoft Word 6.0.1			Microsoft Excel 5.0			Elastic Reality 1.01		
File Open	Scroll	Find and Replace	File Open	Scroll	Floating-Point Calculation	Integer Calculation	Rendering	
IBM Power Series 850	1.3	12.4	1.8	1.3	14.4	1.8	0.7	51.0
Motorola PowerStack	1.4	12.3	2.2	1.5	14.4	2.5	0.9	63.4
FirePower	1.9	12.6	2.9	1.8	14.5	2.6	0.9	65.4
Power Mac 9500	8.4	20.0	2.9	10.0	8.0	3.4	0.8	79.6

BEHIND OUR TESTS

Macworld Lab tested several functions in three programs for real-world performance, using Power Mac-native versions of software on a Power Mac 9500/132 and 32-bit NT-compatible versions on Motorola, FirePower, and IBM PCs. The NT software was optimized for PowerPC performance. We used System 7.5.2 on the Power Mac and Windows NT for Workstations 3.5.1 for PowerPC on the NT-based PCs. All machines tested had 32MB of RAM and ran

under 8-bit color on 17-inch color monitors at Super VGA resolution (832 by 624 pixels on the Power Mac and 800 by 600 pixels on the PCs), using PCI-based accelerated video cards. The IBM system used a 133MHz PowerPC 604; the Motorola system, a 100MHz 604; the FirePower system, a 100MHz 604; and the Power Mac 9500, a 132MHz 604.—Macworld Lab testing supervised by Danny Lee

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Circle 175 on reader service card

Macworld Online

by Macworld Online Staff

The Sound and the Fury: Usenet

During Senate hearings on the Communications Decency Act of 1995, Senator James Exon (D-Nebr.) used samples from prurient Usenet newsgroups to bolster support for online censorship. During the Tiananmen Square demonstrations in China and the dissolution of Eastern Europe's Communist bloc, Usenet was a primary source of firsthand information. And rebels in Chiapas, Mexico, rely on newsgroups and E-mail to disseminate information in an official environment that denies their existence.

If E-mail is the postal system of the Internet, Usenet is its public bulletin board. Accommodating nearly 10,000 newsgroups organized according to topic, Usenet allows subscribers with a proper newsreader to post messages to specific groups (see "Usenet Shareware" below). Some newsgroups display all posted messages; others are screened, or *moderated*.

Like your public library, Usenet is a repository for topics sacred and profane. Traditionally, the computer that carries your Usenet newfeed holds a copy of all newsgroups and acts as a transmitter for other Usenet sites, making censorship next to impossible. Here's a guide to deciphering Usenet newsgroups and their denizens, and some software to help you on your way.

Usenet Notes

Given the number and variety of newsgroups, you might want to consult an annotated list of the active newsgroups, which is posted weekly in the news.announce.newusers newsgroup. As the foregoing example attests, newsgroup names can be arcane—comp.sys.mac or alt.folklore.urban, for instance. The first term in the name reflects one of eight broad classifications: *comp* (computer-related), *misc* (a catchall), *news* (Usenet information), *soc* (social issues), *rec* (hobbies and arts), *sci* (science and technology), *talk* (*argue* is more accurate), and the wild card *alt* (alternative). Subsequent terms in a name further

classify the group—*sys* signifies *system*, for example.

Before posting to a newsgroup for the first time, consult the topic's FAQ (frequently asked questions) file. The FAQ outlines the newsgroup's history, accomplishments, and customs. A linked list of FAQs for many newsgroups resides at <http://www.cis.ohio-state.edu/hypertext/faq/usenet/FAQ-List.html>.

Finally, it pays to observe the rules of Netiquette: No advertising, no flaming (sending rude or antagonistic responses), and remember to reply via E-mail rather than posting to the whole group whenever possible. (For a general overview of Usenet, con-

sult <http://sunsite.unc.edu/usenet-i/home.html>.)

Usenet Shareware

The following shareware requires a direct connection to the Internet. Subscribers to commercial online services can access newsgroups using tools provided by their service.

Newsatcher from John Norstad is our favorite Usenet newsreader. With simple tools for browsing, replying via E-mail, and posting to a group, Newsatcher organizes topic threads into a Finder-like hierarchy that makes it simple for you to skip topics that don't interest you. The manual is a must-read for its excellent introduction to Usenet.

NewsHopper is designed as an offline newsreader, and it can save you money if you pay an hourly fee for your Internet connection. NewsHopper connects to the news server, retrieves articles that have been added to your subscribed newsgroups since you last connected, and then logs off. You can also use NewsHopper to retrieve only topics and authors, so that you can mark the ones you want to read and then reconnect to fetch only those postings.

You'll find these files in the Macworld Software Library on America Online, eWorld, or Macworld's World Wide Web site. **m**

LIVE-EVENTS CALENDAR

Plug into Macworld Live for weekly real-time events that feature some of the brightest stars in the Macintosh universe. In addition to our troubleshooting clinics, we bring editors and writers, artists and visionaries directly to your desktop. America Online events are held on Thursdays, and eWorld events are on Wednesdays. All events are at 6 p.m. Pacific standard time.

Ask Cary Lu October 4, eWorld

Cary Lu is Macworld's digital nomad, reporting on mobile- and remote-computing issues in his *PowerBook Notes* column. Once a month, Cary checks in online to answer your questions on these topics and more.

Online Production Techniques October 5, AOL

For many graphic designers, making the transition from print to the online world requires a whole new set of skills. Join Paul Devine, Macworld Online's production genius, for an evening seminar on maintaining online production values.

Free Speech on the Net October 12, AOL

Macworld Online contributor Liza Weiman briefs us on free speech in

the electronic age. In this new medium, do the laws of print or broadcast media apply? We'll talk about the current legal climate on the Net.

Costa's Clinic October 18, eWorld

Are you a new Macintosh owner or a power-user-in-training? Join Macworld Online's technology guru, Steve Costa, for his monthly virtual Mac clinic. Steve will help you tune up your computer and outfit it with great shareware, and will give you the scoop on all things Macintosh.

Jim Ludke October 19, AOL

Jim Ludke is the mad scientist behind many digital-art projects, including the brilliant CD-ROMs produced by the Residents, San Francisco's multimedia insurgents. Take a tour of his brain.

Jim Heid Q&A October 26, AOL

Macworld contributing editor Jim Heid's *Complete Mac Handbook* is a fantastic compendium of Macintosh lore that no Mac owner should be without. At this monthly event, Jim answers just about any Macintosh question that you can throw at him.

REACHING MACWORLD ONLINE

America Online and eWorld
Keyword is Macworld
World Wide Web
URL is
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Are you backing up or going nowhere?

You have good intentions. You drag your important files

to a disk or server. But just imagine you need to restore everything right now. Ouch! Reassembling your hard disk would be like trying to put together the VCR your five-year old took apart.



To save time and space, we back up only what's new and different.

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4. Retrospect teams up with tape or cartridges. It's no wonder Retrospect's bundled with just about every Macintosh tape drive sold. It's no slouch with SyQuest, MO, or Zip drives either – put them together with Retrospect and you've got a powerful backup machine.

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New Products

THE LATEST MACINTOSH RELEASES

by Jim Feeley
and Joanna Pearlstein

THIS SECTION COVERS MACINTOSH PRODUCTS FORMALLY ANNOUNCED BUT NOT YET EVALUATED BY MACWORLD. UNLESS OTHERWISE STATED, ALL PRICES ARE SUGGESTED RETAIL AND THE MINIMUM REQUIREMENTS FOR OPERATION ARE A MAC PLUS WITH 1MB OF RAM, RUNNING SYSTEM 6. A  SIGNIFIES THAT A NATIVE POWER MAC VERSION OF THE PRODUCT IS AVAILABLE. ALL INFORMATION AND PERFORMANCE CLAIMS ARE SUPPLIED BY THE PRODUCT VENDOR AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY MACWORLD. PLEASE CALL VENDORS FOR INFORMATION ON AVAILABILITY.

HARDWARE AND ACCESSORIES

CB-1716CL

This flat-square 17-inch monitor has a 0.28mm dot pitch and a maximum Macintosh resolution of 1152 by 1024 pixels. An LCD panel permits users to adjust screen shape to fix parallelogram, trapezoid, and tilt imperfections. The monitor is compliant with Energy Star and MPR II standards and includes self-correcting focusing and an antireflection coating. \$795, Mac adapter \$15. Smile International, 714/546-0336; fax 714/546-0315.

LCS-3210

Labtec's new multimedia speakers combine Spatializer 3D technology with advanced speaker magnets and transmission-line enclosures. The result is three-dimensional surround-sound and a strong, accurate bass response from two narrow speakers without a subwoofer. \$99.99 company's estimated price. Labtec, 360/896-2000; fax 360/896-2020.

Media Playback Professional

Aimed at the kiosk and interactive-training market, this NuBus card lets CD-ROM-equipped Macs play interactive CD-i (compact disc interactive) titles with 30-fps full-screen MPEG video. The card supports touch screens and plays back MPEG files from a hard drive. \$1000. International Interactive Media, 617/290-5964; fax 617/890-6682; i2m@world.std.com.

Mega Drive Enterprise

Mega Drive Systems has developed a flexible storage solution for the diverse needs of networking, digital-video, and color-publishing professionals. The Enterprise accommodates any 3 1/2- or



Mega Drive Enterprise

5 1/4-inch storage device and is available in a tower or rack-mount configuration, with either two or eight slots. The system features hot-swappable redundant fans and power supplies; hot-swappable drives in RAID configurations; support for hardware and software RAID levels 0, 1, and 5; two independent SCSI channels with ID selection and termination; and upgradable I/O panels. Eight-slot storage-hub unit \$1595, two-slot version \$400. Mega Drive Systems, 310/247-0006; fax 310/247-8118; sales@uu1201.megadrive.com.

Optquest 1769DC

This Energy Star- and MPR II-compliant 17-inch monitor offers a 0.28mm dot pitch and a maximum Macintosh resolution of 1024 by 768 pixels at 75Hz. On-screen programming and 28 memory modes allow the monitor to adjust image shape and color automatically. Users can expand the display area out to the bezel. \$795. Optquest, 909/468-3750, 800/843-7684; fax 909/468-3370; <http://www.viewsonic.com/>.



Optquest 1769DC

PCTalk MacLAN Connect Kit

If for some reason you have one or two DOS-speaking computers in your office (it happens, we understand), you can use this kit to connect them to your Mac-

intosh LocalTalk network. The PCTalk adapter installs easily in seconds to a PC's parallel port, and the MacLAN Connect 5.0 (does not support Windows 95) software provides bidirectional file and print sharing between PCs and Macs. \$359. Apexx, 208/336-9400, 800/767-4858; fax 208/336-9445; 71043,2403@compuserve.com.

PressView 21 SR

Radius combines a high-quality aperture-grille tube (similar to a Sony Trinitron) with a ColorShield hood, a colorimeter, and monitor-management software to produce a display system that meets the exacting demands of graphics professionals who require a high degree of color accuracy and consistency. The monitor comes with custom Adobe Photoshop tables for converting CMYK colors to RGB (and vice versa), as well as tables for SWOP, SNAP, and Euroscale press configurations to ensure accurate color matching. The monitor has a 19.7-inch viewable area and supports a maximum resolution of 1600 by 1200 pixels. \$3999. Radius, 408/541-6100; 800/227-2795; fax 408/541-6150; support@radius.com.

QuickStream/3

Sonic Systems enters the remote-access market with a three-port PPP remote-access hardware server that supports AppleTalk and TCP/IP. QuickStream/3 supports three simultaneous 115.2-Kbps remote connections through common V.34 modems and includes an unlimited license for the company's SonicPPP Mac client software. The server comes with 10BaseT and thin Ethernet connectors. \$999. Sonic Systems, 408/736-1900, 800/535-0725; fax 408/736-7228; sales@sonicsys.com.

SCSI PowerPlug II

Pity the poor prepress and multimedia professionals who must constantly switch among hard drives just to manage their gobs of data. Adcon's PowerPlug provides some relief from this hassle, enabling these folks to add devices to their SCSI chain without having to shut down and reboot their Macs each time—even if devices are formatted with different software. It also provides digital active termination and a fuse that resets automatically. The PowerPlug allows dockable PowerBooks to connect with active desktop Macs. \$119.99. Adcon, 203/761-0651, 800/248-8466; fax 203/761-1444; online@well.com.



SCSI PowerPlug II

SDDS-02 PC Card Drive

The SDDS-02 provides an easy way for a desktop Mac to access PC Cards (formerly PCMCIA) designed for PowerBooks. The external SDDS-02 drive offers two independent 16-bit PC Card Type III sockets and a SCSI interface that ensures compatibility with all Macs. The drive ships with formatting software and Missa Fortezza security-card drivers. Adtron also has other external and internal PC Card drives available. \$425. Adtron, 602/926-9324; fax 602/926-9359; sales@adtron.com.

Sigma LC

MIS professionals and others who need to identify faulty Macintosh RAM modules quickly and easily need no longer turn to repair shops or complex, expensive devices. 1st Tech's handheld Sigma LC conducts seven different tests on a memory module in about four seconds per megabyte. It can be configured to test PC Cards (formerly PCMCIA) as well as Macintosh, Power Mac, and PowerBook SIMM and DIMM modules. \$1595, PowerBook memory adapter \$349. 1st Tech, 512/258-3570, 800/533-1744; fax 512/258-3689; info@1st_tech.cmail.compuserve.com.

Sola 510

Only the prescient among us have mastered the art of saving files and shutting down our Macintoshes moments before a power outage. When darkness falls unexpectedly, the Sola 510 uninterruptible power system switches automatically to its internal battery, giving you time to shut down the Mac safely. It also filters power surges and sags. The Sola 510 is available in 600-, 900-, 1250-, 1650-, and 2000-volt-ampere versions that work in both 50Hz and 60Hz environments. Optional battery packs are available for the 1650-VA and 2000-VA units. Prices start at \$459. Sola, 708/439-2800, 800/377-4384; fax 800/626-6269.

continues

New Products

TowerFeed

The TowerFeed multitrack sheet feeders provide an easy way for Apple LaserWriter II and LaserWriter Pro 630 printers to print documents using more than one type of paper. For example, you could create press kits that have a first page printed on letterhead and subsequent pages on plain paper. The included software lets you select any sequence of trays, and you can save frequently used combinations by name. The TowerFeed supports letter- and legal-size pages. Three-drawer desktop unit \$1995, four-drawer \$2695, five-drawer \$3695, seven-drawer \$4895. Hilton Systems, 516/759-7018, 800/800-7018; fax 516/759-7028.

TracPro

You needn't be tied to a 3-foot mouse cord when you make computer-based presentations. The TracPro wireless remote control has a 16mm trackball and 18 backlit buttons that together let you control almost any Macintosh application. The TracPro requires no software to function as a remote mouse, but with the included ProShow software you can add up to 32 keyboard and mouse commands per button. \$199; with built-in laser pointer \$279. Presentation Electronics, 916/652-9281, 800/888-9281; fax 916/652-9286.

Wrist Floats

The Wrist Floats take a unique approach to supporting your wrists while you use your keyboard. Two charcoal gray contoured pads are molded from flexible



Wrist Floats

PVC plastic and stand on 200 soft bristles that flex and move with your wrists. The bristles allow you to position each pad independently, making the Wrist Floats suitable for use with split keyboards and mice as well as with standard keyboards. \$14.95. Ring King Visibles, 319/263-8144, 800/272-2366; fax 319/262-6623.

Z1-600

Tamarack's 30-bit, single-pass flatbed color scanner delivers speedy, accurate scans at a low price. The Z1-600 can digitize an 8.5-by-11-inch image at 300 dpi with 30-bit color in 35 seconds. The scanner has a 2.8 true-density range and an optical resolution of 300 by 600 dpi



Z1-600

(2400 dpi interpolated). \$699; automatic document feeder \$495; transparency adapter \$295. Tamarack Technologies, 714/744-3979; fax 714/744-4582.

SOFTWARE

ArtScreens:

The Impressionist Collection

Why hang art posters on your wall when you've got a computer? Trident Software's ArtScreens: The Impressionist Collection decorates your screen with



ArtScreens: The Impressionist Collection

Impressionist paintings from the collections of the National Gallery of Art in Washington, D.C. The product includes 40 works by 20 artists from the nineteenth and twentieth centuries. The screen saver can also play music by Chopin, Debussy, Fauré, and Liszt. You can view a biography of each artist and information about the artwork. Available at a fine-arts museum near you. \$26.95. Trident Software, 703/243-0303, 800/224-2293; fax 703/243-0304; 74777.2137@compuserve.com.

Attaché Opener, Output Utilities Toolkit, Resize XT 3.0, and Script Manager XT

These new XTensions provide one-stop shopping for QuarkXPress power users. Attaché Opener lets users open fonts as needed for QuarkXPress documents without installing them in the System. Output Utilities Toolkit's eight utilities provide crop marks and registration marks around objects, delete colors not being used in a document to decrease file size, allow batch output of files, print job information about a document, and create a palette from which to change output devices. Resize XT 3.0 offers proportional and nonproportional scaling of page elements. Script Manager XT helps you organize and use scripts more effectively. Attaché Opener \$39; Output Utilities Toolkit \$169; Resize XT \$99; Script Manager XT \$79. Vision's Edge, 904/386-4573, 800/983-6337; fax 904/386-2594; veiprodukt@aol.com.

Colorize 2.0

Ever wish you were Ted Turner? Here's your chance. Colorize 2.0 helps you color black-and-white scanned images and clip art. Colorize treats each color as a separate layer and recognizes borders in black-and-white TIFF files. Paint tools include blends, gradient fills, and airbrushes. The product traps colors automatically and can save images in TIFF or EPS format. But do us a favor—hands off Casablanca. \$495. DS Design, 919/319-1770, 800/745-4037; fax 919/460-5983; dsdsoft@aol.com. *continues*

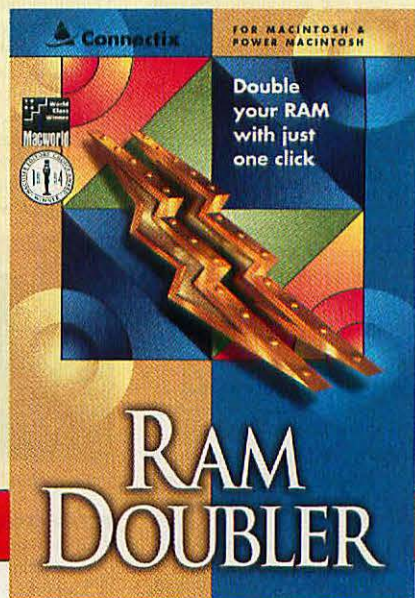
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System Requirements: Macintosh equipped with a 68030, 68040 or PowerPC microprocessor. System 6.05 or later, including all versions of system 7 • 4 MBs required (hard disk required for machines with 4 to 6 MBs) • Not compatible with Mac SE, original Mac Classic, original Mac LC or PowerBook 100 or Mac II without a 68851 PMMU or any accelerator that does not work with virtual memory.



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New Products

CU-SeeMe

You can buy ISDN cards and expensive videoconferencing software—or save money and use the Internet. With CU-SeeMe, a video camera sees through Connectix's QuickCam, and access to a reflector site, you can broadcast images across the Net. Anyone with CU-SeeMe can view those images by connecting to your site. Developed at Cornell University, the commercial version of CU-SeeMe adds color, Web browser support, an address directory, incoming message alerts, and improved audio. \$99. White Pine Software, 603/886-9050, 800/241-7463; fax 603/886-9051; info@wpine.com; <http://www.wpine.com>.

The Digital Chisel 2.0

Educators can create vibrant storybooks, lessons, and reports using this multimedia authoring package. It includes graphics, full-motion video, sound, Photo CD files, and animation. Version 2.0 adds gauges to monitor disk space and RAM availability, extended sound capability, improved handling of tools, speed controls for path animations, new templates, and better performance. The



The Digital Chisel 2.0

product also includes SnapGator, a screen-capture utility. \$159. Pierian Spring Software, 503/222-2044, 800/472-8578; fax 503/222-0771; 74220.2446@compuserve.com.

DOE-101

DOE-101 is experiment-design software for non-statisticians. The software guides you through each step of planning, designing, and conducting experiments, and it helps you analyze results. It manages two-level full and fractional factorials, as well as Plackett-Burman screening designs. \$300. Scientific Software, 708/949-1764; fax 708/949-4478.

The Feeling's Mutual 4.0

No, this isn't a New Age diagnostic tool for your emotions. Rather, it's a mutual-fund database and financial-planning tool. The Feeling's Mutual covers a variety of mutual funds, with information on 55 of the best-known mutual-fund families. Geared for the novice investor, the product also includes analysis techniques useful to professional investors and financial planners. Features of version 4.0 include inflation-adjusted savings and annuity projections, a reference list of articles on mutual funds, and risk- and load-adjusted analysis of funds based on the user's investment horizon. \$60. Interpretive Software, 804/296-8205, 800/910-4474; fax 804/979-2454; 70401.2062@compuserve.com.

Hearts Deluxe 4.0

Computer games are great, but don't you sometimes miss the camaraderie

and the sarcastic comments of your friends when you play alone? Don't despair—those disparaging remarks can be yours again as you play against speaking opponents in Hearts Deluxe. This shareware hearts game also includes voice recognition, a 3-D interface, 8-bit color, multichannel sound, and a tutorial. Version 4.0 supports plug-in modules for new opponents, a telepathy window that lets you see the artificial-intelligence engine, and improved built-in help. \$15. freeVerse Software, 800/373-3837; fax 212/647-0562; freeverse@aol.com.



Hearts Deluxe 4.0

Kara Fonts Chisels, Volume One

Are your documents missing that certain je ne sais quoi? Try adding some 3-D fonts. Kara Font Chisels are created with Adobe Illustrator in a proprietary format called Gradient Fonts, and although they aren't PostScript Type 1 or TrueType fonts, you don't have to place individual characters together as you do with clip-art letters. Instead, you can type copy in the included Kara Fonts-HeadSetter utility, which assembles the letters and can adjust alignment, size, and tracking. Volume One includes the AmeriChisel, AvantChisel, BookChisel, HelvetiChisel,

and OptimChisel font families. Each font includes upper- and lowercase, numerals, and special characters. \$99.95 company's estimated price. Kara Computer Graphics, 310/578-9177, 800/475-8694; no fax; karacg@aol.com.

Mechanical Systems Pack

Used in conjunction with Mathematica, this collection of tools helps mechanical engineers and researchers model and analyze multibody mechanical systems. You can develop and modify complex models and visualize and analyze design changes. The pack's large library of kinematic constraints lets you create and display models in both two and three dimensions. The Mechanical Systems Pack also includes its source code, so you can make your own modifications. \$195. Wolfram Research, 217/398-0700, 800/441-6284; fax 217/398-0747; info@wri.com; <http://www.wri.com>.

Network Security Guard 3.0

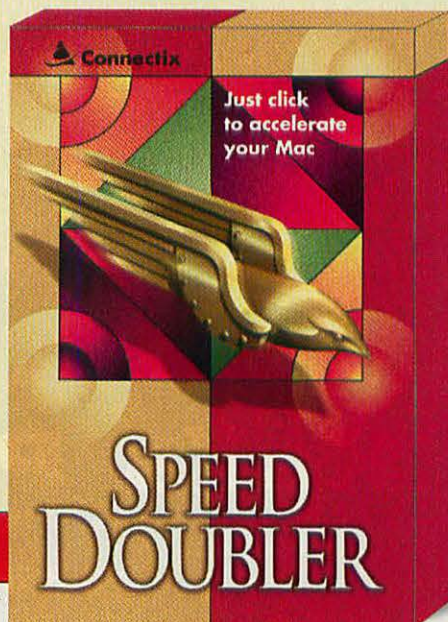
System administrators, do you lie awake at night dreading the day you'll have to survey each and every computer in your 300-node network to make sure that some ignoramus hasn't left a computer open to prowlers? Network Security Guard can watch out for computers on your AppleTalk or EtherTalk network that are sharing files improperly. The application also incorporates basic hacker tools to ensure that passwords aren't too easy to crack. Version 3.0 includes improved password-guessing algorithms. \$259. MR Mac Software, continues

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With Speed Doubler, Power Macs instantly run non-native applications twice as fast! For instance, recalculate a 5000 cell Excel 4.0

spreadsheet with Speed Doubler in 6 seconds, without it...13 seconds. Run a summary calculation of 1500 FileMaker Pro records in 90 seconds instead of 3 minutes. It's not magic. It's Connectix Speed Doubler. And if you own a Power Mac, you gotta have it. Get Speed Doubler today wherever fine computer products are sold. Your satisfaction is guaranteed.



Requirements: Macintosh equipped with a PowerPC, 68040, or 68030 microprocessor • System 7.0 or greater • 8 MB physical RAM or greater • Compatible with Connectix RAM Doubler • Not compatible with Mac Plus, Mac SE, original Mac Classic, original Mac LC or PowerBook 100

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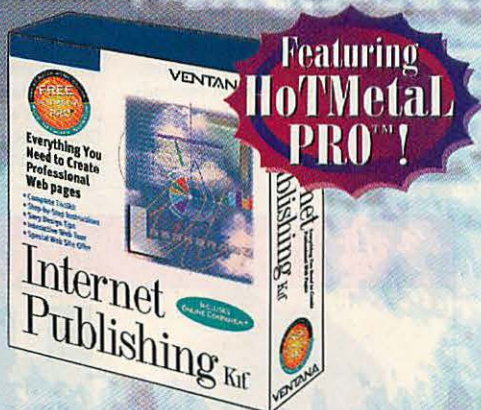
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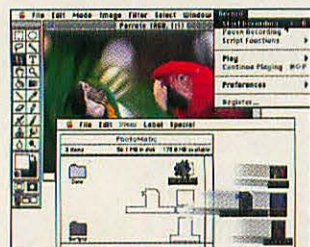
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New Products

619/453-2845; fax 619/481-1263; sales@mrmac.com.

PhotoMatic 2.0

Bemoaning Adobe Photoshop's lack of AppleScript support? Whine no more. This utility helps Photoshop interact with AppleScript, and—better yet—it's free. To create a script, use PhotoMatic's record function to record your actions in an AppleScript-compatible script. A status window displays scripts queued for processing. Free. DayStar Digital, 770/967-2077, 800/962-2077; fax 770/967-3018; <http://www.daystar.com>



PhotoMatic 2.0

pro forma 3

Spreadware's financial-forecasting package for businesses includes income statements, balance sheets, growth and trend revenue-forecasting tools, a fixed-asset schedule with a built-in depreciation engine, and new projection methods. You can apply depreciation methods such as straight-line, declining balance, accelerated declining balance, and sum-of-years digits. Version 3 lets you use

your own algorithms. \$498 (\$327 till December 31, 1995). Spreadware, 619/772-1758; fax 619/772-1759.

SoftTrack 2.5

How many concurrent software licenses do you *really* need? SoftTrack will help you decide. The product runs over a NetWare network to help organizations comply with software license agreements and ensure that they purchase only the number of licenses they require. Version 2.5 adds support for NetWare 4.X servers. 50-user pack \$495. On Technology, 617/374-1400, 800/767-6683; fax 617/374-1433; info@on.com; <http://www.on.com>.

CD-ROMS

The 1995 Guinness Multimedia Disc of Records

Remember how as a child you spent hours poring with fascination over the photographs of the person with the world's longest fingernails, the tallest man, the largest watermelon? You can still satisfy that curiosity. The interactive version of *The Guinness Book of Records* is brimming with videos, audio, more than 1000 images, and over 15,000 entries. See videos of a mobile hotel, a record-breaking assortment of jack-o'-lanterns, and, yes, the longest fingernails in recorded history. An essay, "What Makes Them Tick?" contains interviews with record-breakers. \$49.95. Grolier Electronic Publishing, 203/797-3530, 800/285-4534; no fax.

The Ansel Adams Screensaver

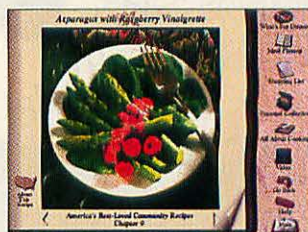
Save your screen and beautify your workstation with this collection of 30 photographs by the master of landscape photography. Excerpts from Adams's writing appear at random intervals between images, and you can display information about a photograph by pressing a key. Time Warner Electronic Publishing says it will follow this product next year with *The Art of Ansel Adams*, a CD-ROM survey of Adams's work, and in 1997 with *The Ansel Adams Guide to Photography*, a manual of photographic technique. Available on CD-ROM or floppy disk. \$30 company's estimated price. Time Warner Electronic Publishing, 212/522-4643; fax 212/522-1048; <http://pathfinder.com/twep>.

Better Homes and Gardens Presents Great American Cooking

Spreadsheets, databases, financial software—who needs 'em? Your Mac can help you cook. Better Homes and Gardens takes you on an interactive tour of foods and cultures of the United States and helps you create regional delights—from Halikahiki Moa Curry to Baked Beans. Tell the program what's in your cupboard, and it provides a list of suggested recipes. You can also select recipes based on nutritional guidelines and preparation times. Recipes from all the Multicom CD cookbooks are contained on the disc, and you can add your own recipes. (Splatter guard for your keyboard not included.) \$39.95 company's estimated price. Multicom Publishing, 206/622-5530, 800/850-7272; fax 206/622-4380.

Escape From Management Hell

Maybe a fortune cookie said you have executive potential, but that doesn't mean you can't screw up. *Escape From Management Hell* is a learning tool on CD that teaches management skills by bringing users to Satan's underworld. As Satan's assistant, you must judge the fate of 12 prisoners—Caligula, Spartacus, Hammurabi, Constantine, and Edgar Allen Poe, among others—who have committed management sins. \$29.95 company's estimated price. Zelos Digital Learning, 415/788-0566, 800/345-6777; fax 415/788-0562.



Better Homes and Gardens Presents Great American Cooking

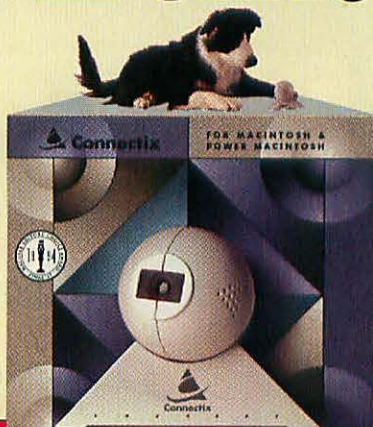
Research Systems' Visible Human CD

What does a thalamus look like? Find out with Research Systems' Visible Human CD, which lets you look at and navigate multiple views of the human body. The disc includes color photos, magnetic-resonance images, and registered computed tomography images compiled from data provided by the continues

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MAKE MOVIES



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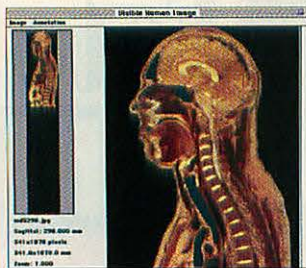
To order from outside the U.S.A. and Canada, call (612) 941-9470 or FAX (612) 941-7836.
WWW: <http://www.fargo.com>

*Average U.S. retail price is under \$400, but dealer prices may vary. FotoFUN! and FotoMUG! are trademarks and FARGO is a registered trademark of FARGO Electronics, Incorporated. All other trademarks are the properties of their respective owners. ©1995 FARGO Electronics, Inc., 7901 Flying Cloud Drive, Eden Prairie, MN 55344 U.S.A.

FARGO
ELECTRONICS, INCORPORATED

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New Products



Research Systems' Visible Human CD

National Library of Medicine. Animations help you see in 3-D the relationships among elements. You can view the Visible Human in axial, sagittal, and coronal orientations, and you can annotate or output the 10,000-plus images to TIFF, GIF, PICT, JPEG, and EPS formats. This version shows a Visible Male body; a Visible Female is in the works. \$495. Research Systems, 303/786-9900; fax 303/786-9909; info@rsinc.com.



Triazle Living Puzzles

Triazle Living Puzzles

Triazle is an interactive, animated brain-

teaser featuring sights and sounds of the world's rain forests. Users link triangles made of insects and creatures found there. As objects are placed, the creatures come to life. The product, available both on CD and floppy disk, includes an encyclopedia of facts about the rain forest. To round out the deal, Triazle comes with an AfterDark screen-saver module. \$20 company's estimated price. Berkeley Systems, 510/ 540- 5535, 800/344-5541; fax 510/ 549-3978.

BOOKS

a BLIP in the continuum

Robin Williams celebrates "grunge typography" and "degenerative design." Yes, this is the same Robin Williams who constantly proclaims the virtues of good design. And believe it or not, she upholds her ideals here. But we suspect she's been listening to Rancid recently. A floppy disk includes 22 shareware fonts including Basketcase, Nicotine, Device, and Washout—nothing you'll see in the Pottery Barn catalog. 96 pages. \$22.95. Peachpit Press, 510/548-4393, 800/ 283-9444; fax 510/548-5991; <http://www.peachpit.com>.

How to Access the Federal Government on the Internet 1995

Investigative journalist Bruce Maxwell provides detailed descriptions of nearly 300 federal Internet sites and resources. He provides tips on searching selected sites and on where to begin a search for

government information. 402 pages. \$22.95. Congressional Quarterly, 202/ 822-1475, 800/638-1710; fax 202/ 887-6706; books@cqalert.com.

Pricing Guide for Desktop Services

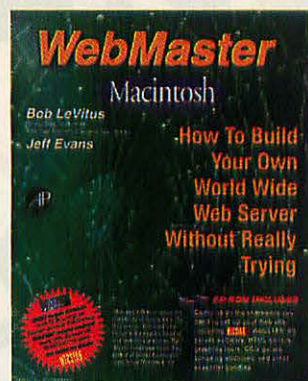
This book shows desktop publishers how to estimate and bid on jobs. Robert C. Brenner explains how to break down and allocate costs, calculate hourly rates, find the break-even point, and locate customers. This information, along with sample worksheets and forms, is what readers need to develop lasting business relationships. 382 pages. \$34.95. Brenner Information Group, 619/693-0355; fax 619/484-2599.

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WebMaster

This book delivers nuts-and-bolts guidance for connecting with an Internet service provider, writing HTML code, and setting up a Web server. Bob LeVitus



WebMaster

and Jeff Evans provide detailed information about security, clickable maps, databases, and Internet resources for becoming a World Wide Web master. The CD-ROM version includes WebStar PS, HTML editors, scripting additions, and more. 302 pages. \$29.95. AP Professional, 619/699-6735; fax 619/699-6380; app@acad.com. **m**

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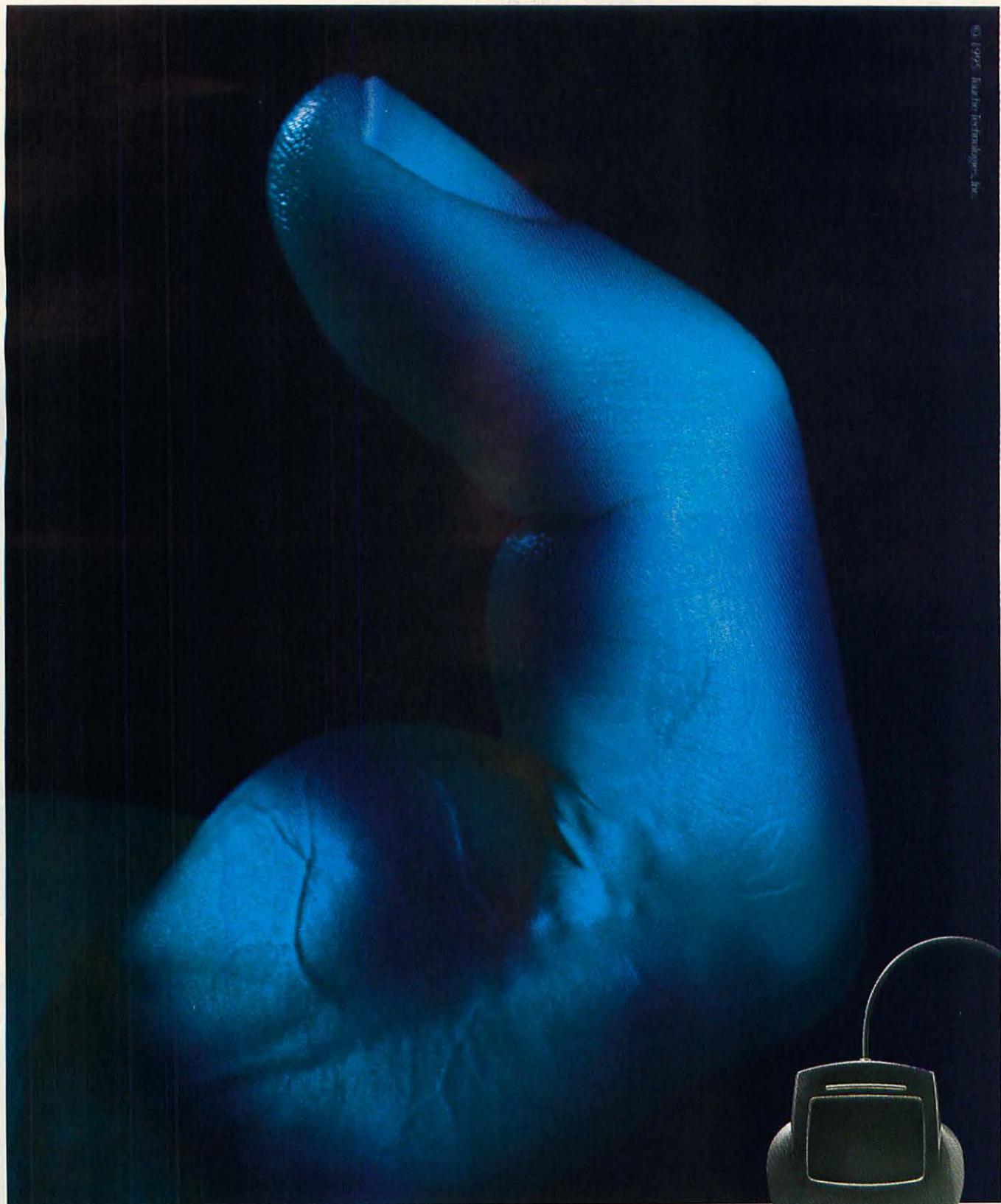
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Macintosh the standard for creative computing. Now we make the computer, too.

Based on the extraordinarily powerful 110 MHz PowerPC® 601+ processor, the Radius 81/110 is basically raw power in an open box that you or your reseller can configure to meet your specific needs. It's packed with the superior quality for which Radius is famous. It's backed by the superior service and support for which Radius is also famous. And it's available at a better price (for which Radius is about to become famous).

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Reviews

Adobe PageMaker 6.0

Page-Layout Software

PROS: Supports multiple master pages; greatly improved page-layout tools; powerful search-and-replace features; integrated trapping; improved color management. **CONS:** No gradient fills; weak table application; Undo fails to work with many commands. **COMPANY:** Adobe Systems (206/622-5500). **LIST PRICE:** \$895.



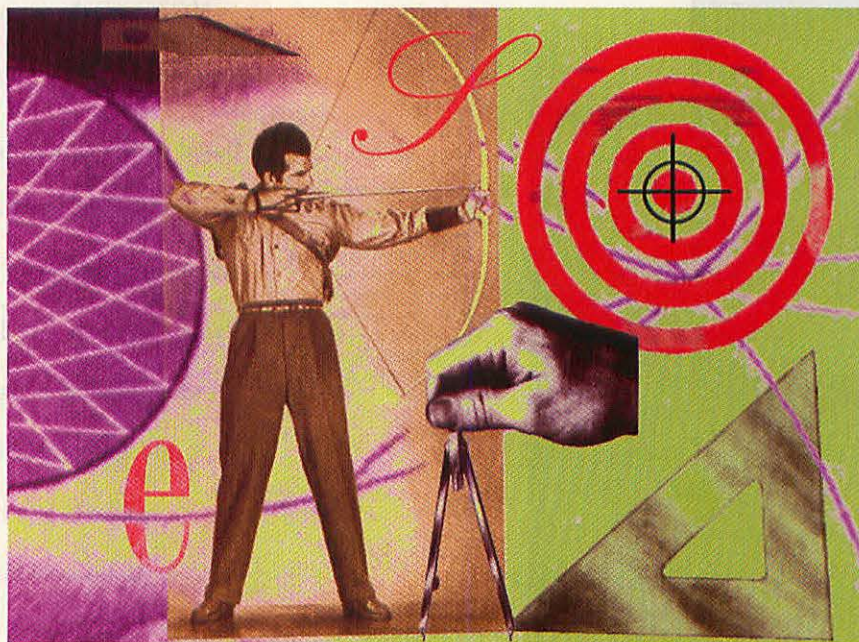
USERS OF PAGEMAKER, THE page-layout program that helped launch the desktop publishing industry back in 1985, have been yearning for an upgrade for over two years. Now, under the banner of Adobe Systems, the program has been discreetly but thoroughly overhauled, with results that most users should find very welcome.

Adobe has beefed up the program with more than 50 new features, at last delivering some of the high-powered page-layout, typographic, and color capabilities that users have come to expect in professional page-layout software. Not surprisingly, many of PageMaker's new features make the program look, feel, and act more like its rival, QuarkXPress.

Page-Design Features

Many of PageMaker's new features are hardly innovative, but they're welcome news to PageMaker users who have bemoaned the program's lack of page-design muscle. For example, the program now allows you to group and lock objects on a page, align and distribute groups of objects, and move items forward or backward one layer at a time. These are basic features, but they've been missing from PageMaker for a long time.

Another long-awaited enhancement: PageMaker documents no longer limit



you to one master page (a page that can be used as a template to create new document pages). In each document, you can create up to 256 master pages. The new Master Page palette lists all the master pages in your document, and a pop-up menu on the palette allows you to create and name new master pages or edit existing ones. To apply a new master page, you choose the Apply command from the Master Page palette—or just double-click on a master-page icon.

A great feature—one conspicuously absent in QuarkXPress—is the ability to create a new master page from an existing document page. You simply choose the Save As command from the Master Page palette's pop-up menu and assign the new master a name. The displayed document page then becomes a master page.

PageMaker's Toolbox is also improved. The Zoom tool is now in the Toolbox, allowing you to easily drag-

select an area to zoom into it. (On the downside, though, you can't specify a level of magnification by typing in a value.) You can set preferences for each tool simply by clicking on it. The new Polygon Tool lets you specify the number of sides the polygon has, as well as the degree of insets, so starburst-type shapes are easy to create and customize. Unfortunately, you can only create regular polygons with sides of equal length.

One complaint: PageMaker's Undo command is still abnormally lame. It won't work with most formatting changes; for example, you can't undo changes made with the Style and Colors palettes.

You can now search for and replace text based on a wide range of character and paragraph-level attributes. Also, you can paste copied text into the fields of the Find and Change dialog boxes, instead of having to type it out. This is another feature long available to QuarkXPress users.

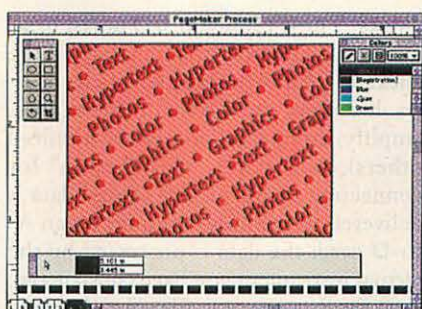
For creating tables, PageMaker now comes with Adobe Table, a separate application that allows you to build and format tables that can be embedded directly in a PageMaker document via OLE 2.0, or exported and placed as a graphic (EPS or PICT). When you add a new table to a PageMaker document using the Insert Object command, Adobe Table opens automatically. The table you then create is embedded within the current PageMaker page. While Adobe Table makes it easy to design a table and apply borders, shading, and text insets, it can handle only basic table editing. Another problem: You can't embed an existing Adobe Table document directly in PageMaker using the Insert Object command; you have to create a new table, then open the existing table from within Adobe Table and copy and paste its contents into the new table. It's a clumsy workaround. (On the other hand, QuarkXPress has no built-in table-editing tools at all.)

Color Publishing

Adobe has significantly bolstered PageMaker's color-handling capabilities. Most notably, the program now supports the Kodak Precision Color Management System (KPCMS) to help deliver more consistent color on screen and to printers. With the Kodak system, you specify device profiles for your output device and monitor. The color-management software then adjusts colors to render them more accurately on your equipment. Of course, as with any color-management system, the resulting colors are still approximations, and you must have accurate profiles supporting your display and output devices for the system to work at all. The KPCMS comes with profiles for 60 monitors. (If a device profile for your monitor is not available, but you know the white point and phosphor values for the monitor, you can create your own profile.) PageMaker's color system supports other models, so other companies could write plug-ins that make models like Apple's ColorSync 2.0 available in PageMaker, in addition to Kodak's.

For spot-color work, PageMaker's selection of color libraries has been expanded. The Pantone collection now includes libraries for metallics, fluorescents, and pastels, as well as Pantone's new Hexachrome libraries for high-fidelity color support.

Another particularly useful color enhancement is the ability to assign tints of existing colors to objects and text (instead of defining a completely new color with the specified tint). As in QuarkXPress, you can apply tints at any percentage from the Type Specifications



Making Masks An example of PageMaker 6.0's new Object Masking feature. First the text and background were created as separate objects. Then they were grouped and rotated 30 degrees. Finally the rectangle object was added and turned into a mask to crop the other elements.

and Fill and Line dialog boxes, as well as from the Colors palette itself. What PageMaker still lacks, however, is the ability to create two-color blends for objects—a much-used feature in QuarkXPress.

Several other small changes make it much easier to work with PageMaker's Colors palette. The palette now contains a None option, so you can easily remove colors from an object with a mouse-click. Another real convenience is the Remove Unused button in the Define Colors dialog box. Clicking on the button cleans up your interface by intelligently removing from the Color palette any colors that are not actually used in a document.

Graphics and Printing

Not surprisingly, PageMaker, as reinterpreted by Adobe, includes a strong suite of graphics and printing features. For the first time, the program includes integrated automatic trapping for objects and text created within PageMaker, by incorporating the former Aldus TrapMaker plug-in. You can set trap widths and thresholds and specify overprinting for black text, lines, and fills.

You can now directly import Photo CD images and sharpen, crop, and color-balance them within PageMaker. New filters have been added to import graphics created in ClarisWorks, as well as PC files in CMX and ODBC formats.

The new PageMaker provides a richer set of tools for manipulating images without third-party image-editing software. Because the program now supports Adobe Photoshop Filters, you also can do full-blown special-effects editing on color TIFF images within PageMaker. To manipulate a TIFF image, you just select it and choose the Photoshop Effects command from the Element menu. This provides access to all available filters (which must be stored in a special Plug-ins folder along with PageMaker's other support files). A dialog box lets you preview the

results of each filter before applying it. (A collection of Adobe Gallery Effects filters comes with PageMaker to get you started.) If you are a Photoshop or an Illustrator user, PageMaker allows you to launch those programs automatically by double-clicking on the graphics that were created with them.

One feature that is not new—but is more conveniently located—is PageMaker's ability to save and store your most frequently used printer settings as printer styles. When it's time to print, you simply select (from the File menu) one of the printer styles you've created, and PageMaker restores all of your settings for the target printer. This feature used to be buried in the Additions menu, but it's now in the File menu. (QuarkXPress offers a similar feature in its QuarkPrint XTension.)

Here are some other noteworthy 6.0 features: the ability to turn objects into masks that can be used to crop images and text, improved handling of EPS graphics (you now get an alert if an EPS file contains a font you don't have available), the ability to import RGB TIFF images and have PageMaker convert them to CMYK, and user-definable page grids.

Going Online

PageMaker 6.0 provides two new tools for publishing electronic documents. The Create Adobe PDF command allows you to save documents directly into Adobe's Portable Document Format, and the HTML Author 1.0 plug-in allows you to export PageMaker documents as HTML-tagged text, the standard format for documents on the World Wide Web. HTML Author allows you to map each individual PageMaker style to a corresponding HTML tag so you can preserve overall formatting instructions when creating Web documents. Unfortunately, HTML Author is somewhat buggy and limited. For example, the filter inserts an empty line into paragraphs that break at the end of a page in PageMaker, and the Read Me file warns that you may get "unexpected results" if you type any new text after applying HTML styles. Also, you can't create more than 50 links in a document.

The Last Word

PageMaker 6.0 is a substantial, solid, and intelligent upgrade—one that brings the program completely up-to-date and puts it on par, in my opinion, with QuarkXPress. Most of the new features are practical and powerful improvements that make it much easier to prepare documents for professional output.

—JOSEPH SCHORR

LabView 3.1

Instrumentation Software

PROS: Direct links to HiQ; improved graphing and printing; improved code for Power Macs; dozens of nice new touches. **CONS:** Provides an overwhelming number of instrument services.

COMPANY: National Instruments (512/794-0100). **LIST PRICE:** \$1995.



THE NATIONAL INSTRUMENTS corporate slogan is "The Software Is the Instrument." These were brave words indeed when

the company made data-acquisition boards and software for the Macintosh SE—a real 100MHz storage oscilloscope would have performed better than a poor little SE chugging along in an 8MHz emulation of that instrument. Now, however, high-speed analog-to-digital (A-to-D) and digital-to-analog conversion cards paired with high-throughput Macs and LabView software can emulate all but the fastest traditional scientific and electronic test-bench instruments.

LabView used to be good enough for monitoring chromatography-detector output; now the program can easily handle microsecond pulsed-laser-spectroscopy data. Not only is the software now the instrument, in most cases it's a more efficient and flexible instrument than the hardwired alternative. A software-emulated lock-in amplifier, for example, paired with a suitable A-to-D card, is a creditable substitute for the original hardware, and you can program the software version for special purposes.

National Instruments has modestly titled its latest release 3.1, although by current software standards 4.0 (or at least 3.6) would have been a fair indication of the amount of new code. Version 3.1 ships on a CD-ROM containing 680X0 code, Power Mac code, conversion software for LabView 2.2 users, and a giant file of instrument examples for popular I/O modes (CAMAC, serial, IEEE-488).

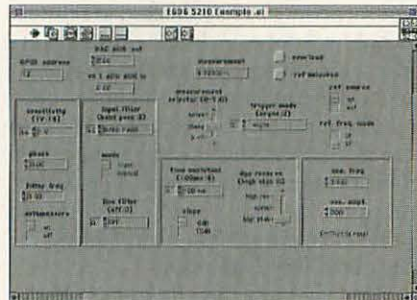
Getting Wired

In much the same way that Mathematica has replaced C, Pascal, or FORTRAN coding as an exploratory tool in theoretical scientific research, LabView has, in a huge variety of university and industrial labs, replaced computer-language data-acquisition programming. LabView provides you with a set of software building

blocks. These represent I/O ports; basic numerical functions that emulate all the tricks you could do in physical electronics hardware (integrate, differentiate, amplify, compare, and several hundred others); and simple "wiring tools" for connecting all the pieces. Digital data is delivered to memory locations by an A-to-D card; the data is processed by the virtual instrument you have constructed; then the data is sent to files (for plotting), to other parts of a LabView program (to direct the output of another virtual instrument), or in version 3.1 to National Instruments' numerical math program HiQ (for mathematical processing).

This latest option opens lots of possibilities. HiQ, the first math program optimized for the Power Mac, is jaw-droppingly fast at matrix and other floating-point operations and offers better graphical output than even the improved graphics of this version of LabView (see "The Power Mac's Scientific Revelation," *Macworld*, September 1995). (For that matter, most of the array and the numerical math available in LabView are better conducted in HiQ.)

In any case, the library of functions in LabView for instrument construction has been expanded over the years to include any data-manipulation function you are likely to need. Although it's easy to call external code from LabView, you probably won't need externals unless you



Locked In Not only can you replicate the functions of standard instruments, such as this EG&G 5210, but you can arrange the front panel to mimic the look of the original controls.

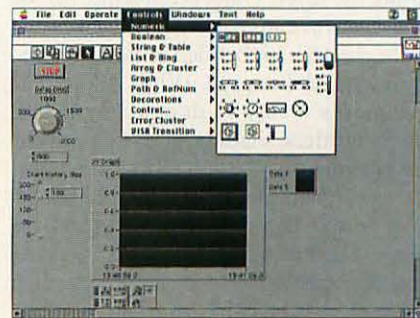
have coded special functions of your own or are sending data to, say, a standardized report form in a word processor.

The News

Version 3.1 is a major advance for LabView, in both features and speed. The response of virtual instruments on a 6100/60 is three to five times as fast as on a Quadra 650. Plotting in HiQ (the LabView plus HiQ package costs \$2395) is eight times as fast in the same system comparison, and it's easy to send all plotting activity to HiQ. At last, in response

to user demand, LabView can now print screens and output directly to PostScript, including PostScript Level 2 for color.

Now that Symantec has finally shipped its Power Mac C++ 8.0 compiler (reviewed in July *Macworld*), the numerous popular third-party LabView Code Interface Nodes can be recompiled



Button Mania LabView lets you build an instrument front panel simply by dragging icons from palettes into an instrument-construction window.

for use with LabView 3.1 for Power Mac. A new Help menu accesses LabView's extensive Online Reference. Many improvements have been made for (virtual-instrument) developers: version 3.1 tracks changes in VIs in a history log, accepts same-name replacement names for existing VIs, and organizes VIs in a hierarchy (so that, for example, a complex instrument appears higher in the VI list than does a ramp generator). Controls for creating front panels have been simplified, and a set of VIs for network connection (TCP and derivatives) now makes it easier to send data over a network.

The only drawback to all this magnificence—in which National Instruments has anticipated every virtual-instrument and interface need under the sun—is that it may be a bit daunting for beginners. Version 3.1's documentation takes up 10 solid inches of shelf space and 40MB of disk space, and it calls for about a week of exploration even for LabView 2.2 users. If you want to monitor temperatures in your greenhouse, get a simpler data-management-and-acquisition package; if you are directing a government-funded project on greenhouse gases, LabView—with its phenomenal scope—is what you need.

The Last Word

LabView 3.1, the first version of LabView for the Power Mac, is the most comprehensive software system for processing laboratory data that humankind has yet contrived to produce, at least commercially. It's hard to imagine a large-scale, networked, Macintosh-based laboratory that wouldn't want LabView at each station.—CHARLES SEITER

FrameMaker 5.0

Page-Layout Program

PROS: Superb table handling; can create powerful hypertext documents. **CONS:** Awkward interface; constructing hypertext documents is complicated; weak HTML-export capabilities.

COMPANY: Frame Technology (408/975-6000). **LIST PRICE:** \$895.



DESPITE A QUIRKY, UNIX-INSPIRED interface, FrameMaker has long been the tool of choice for creating complex technical documents. It isn't pretty, it isn't intuitive—some keyboard shortcuts are downright bizarre—but FrameMaker has filled a niche in the world of desktop publishing, thanks largely to its powerful table-formatting features, along with its ability to handle long-document indexing and equation editing.

With the release of version 5.0, FrameMaker is actually starting to look and feel like a Macintosh program—the tool bar now appears in color, for example, and for the first time the program supports AppleScript. Granted, FrameMaker is still complex and quirky, but the improvements are welcome.

Page-Layout Features

Many of FrameMaker's new features don't break any new ground, but they make the program easier to use. For example, FrameMaker now supports text runarounds, so you can make text flow around the contours of a graphic object—a long-overdue feature that has been standard in other page-layout programs (not to mention basic packages such as ClarisWorks) for years. Another much-touted new feature—multicolumn text boxes—is old hat for QuarkXPress users.

Probably the best of the new page-layout features is the ability to create text straddles—lines of text that straddle multiple columns. This allows you to place both headline and body text within a single text frame; the headline stretches across the entire frame, while the body text beneath it flows in several columns. Tables also can straddle columns.

Release 5.0 also features beefed-up file-import and -export options. New and updated filters allow FrameMaker to import directly a wider variety of PC and Mac file formats. The program now lets you import text *by reference*—so that an image of the text appears on the FrameMaker page, where it can be formatted

and reflowed; but the text itself remains editable in the source document. FrameMaker can be set to dynamically update the reference to the source document, pulling in the most recent edits (either automatically or at your command). You can also convert referenced text into editable FrameMaker text at any time.

Word Processing and Editing

FrameMaker is too slow and unwieldy to be a really practical word processor, but some of its word processing features are outstanding. Smart Spaces, for example, prevents you from typing more than one space at a time, eliminating unwanted multiple spaces between words. Search and replace capabilities are exceptional—

Level	SS	Units	Dist	Wt
Lamin	65			44
Hinge	65	87	45	1.084
E-type	32	55	333	15.5
Aim	11	10.9	32.9	66
Q-100	59	29	43	10
S-100	1.98	4.45	1.99	3.11
M-100	4	209	0	975
H-100	5	3	232	9.4
C-100	1	700	5	8.54
P-100	34	5	900	7.4
Fracture	77	499	7.3	5002
Balance	5	77	8.4	63

Table Settings Superior tables are still FrameMaker's hallmark. The program's built-in table-editing tools allow you to create polished tables with custom borders and shading. The tools on the Quick-Access tool bar across the top of the screen provide easy access to the main table-formatting commands.

ly powerful. You can search for items by paragraph style, character style, and a number of other specific attributes.

The program's text-markup features are also excellent. You can set FrameMaker to automatically mark (with a vertical bar) any paragraphs in which you make editorial changes. The program's Compare Documents command automatically compares two versions of a document and creates a comprehensive report showing all the changes that have been introduced. It also creates a new, composite version of the documents, with deletions and insertions clearly marked.

One of the program's greatest strengths remains its table-editing features. For creating complex multipage tables, FrameMaker outshines every other page-layout package. You can easily create tables with repeating header rows and columns. In the Table Designer dialog box, you can apply borders as well as alternate column and row shading. And you can save table formats for repeated use.

Interface Problems

Despite the enhancements, FrameMaker remains awkward and complicated compared with other tools. For example, a simple desktop-publishing task, such as creating a drop cap, is a complicated, multistep process in FrameMaker. Even far less powerful word processing programs handle the task more gracefully.

The FrameMaker interface also has an alien feel to it. For example, you can't type numbers in dialog-box fields using the numeric keypad. Also, there are plenty of keyboard shortcuts, but many are too weird to remember. (For example, to select all the text in a single table cell, you successively press the escape key, then the lowercase T, H, and A keys.)

Online Publishing Features

FrameMaker provides a rich set of tools for creating sophisticated online documents, with hypertext links between separate documents or between sections within a document. The hypertext documents can even include pop-up menus that allow users to navigate directly to a specific portion of a document. FrameMaker's hypertext documents can be distributed to non-FrameMaker users with FrameReader, a utility that allows you to read, search, and print read-only hypertext documents. FrameReader is included on the CD-ROM version of FrameMaker 5.0. Users who purchase FrameMaker on floppy disks can download the program from Frame Technology's BBS or World Wide Web site or request a copy from the company.

The bad news is that creating FrameMaker hypertext documents is a terribly complex, unintuitive process that involves typing in a lot of special codes with the users' manual close at hand. Even working from the manual isn't that helpful because it provides little information about hypertext command syntax, and its examples are sparse.

FrameMaker 5.0 also provides a modest springboard into Web publishing by including WebWorks Lite, a module that lets you generate HTML-tagged text within FrameMaker documents. Unfortunately, WebWorks Lite is slow, has a limited number of HTML tags, and provides no way to edit and polish tagged text or to handle exported graphics.

The Last Word

FrameMaker isn't user-friendly enough to really succeed as a general-purpose page-layout and word processing tool, but it is a solid, powerful program, and it has unique features that make it a smart choice for technical-document creation.

—JOSEPH SCHORR

FaceSpan 2.0

AppleScript Interface Builder

PROS: Fast interface prototyping; supports drag and drop and QuickTime; table simplifies database interactions; Message window aids debugging; easily implemented tool palettes; can bundle scripting additions into FaceSpan applications; excellent demos. **CONS:** No run-time printing; can't print all project windows and scripts; some features not clearly documented. **COMPANY:** Software Designs Unlimited (214/578-6700). **LIST PRICE:** \$199.



NO SCRIPTER'S WORKSHOP SHOULD be without FaceSpan. Originally designed to create quick mock-ups of application interfaces that could be written in another programming language, FaceSpan lets you quickly build AppleScript interfaces. Once you've mastered its idiosyncrasies—such as separate design, play, and run modes that require different initial conditions to run scripts properly—FaceSpan allows you to integrate complex scripts into stand-alone applications with the look and feel of commercial applications.

To create an application with FaceSpan, you first build the application's interface using FaceSpan's many objects, including windows, menus, buttons, text, lists, pop-up menus, boxes, lines, and artwork. FaceSpan handles the basic behaviors of objects automatically: buttons highlight, scroll bars scroll, and menus pull down when you click on them. Other actions are controlled by the scripts you write.

Scripts are the heart of a FaceSpan project; any object can have one. Scripts can control interactions with other applications or can change an object's properties—parameters of objects that relate to their appearance or behavior.

FaceSpan's Message window, useful for debugging, lets you send commands to or get information from any object in your project—even while the project is running. The window also displays interactions between scripts and other applications.

New Capabilities

FaceSpan 2.0 has a long list of new features. Tables—simple spreadsheets with adjustable column and row widths and scroll bars—aid interactions with databases. Gauges can function as sliders, progress bars, or increment arrows like

those in the Date & Time control panel of the Macintosh Operating System. QuickTime movies have simple commands that control playback.

Storage items provide space for lists, table data, or any kind of text. You can create storage items while designing your project or during run-time, and their contents are automatically saved when the program quits. Because scripts cannot be longer than 32,767 characters, storage items are particularly handy for storing script libraries.

If you like tool bars or have a task for which a tool palette makes sense, you can turn imported or pasted artwork into a matrix of buttons using a grid (see "Priming Your Palette").

In addition, FaceSpan lets you add some of the Mac OS's lower-level capabilities, such as drag and drop, to your application. For example, users might type a client's name in cell A1 of a table and then drag a copy of the name to another cell, or drag a graphic from your application's desktop and drop it into a picture frame.

Other low-level additions include commands that retrieve system informa-



Priming Your Palette FaceSpan lets you turn artwork into a set of buttons by applying a Hilite Grid like the 1-by-5 grid shown here in my Period Palette's info box.

tion, methods of determining whether key modifiers (such as ⌘) are pressed, and mouse-tracking and -clicking events. Using the low-level commands that FaceSpan offers, you can add sophisticated interface functions such as constraining drag movement, option-clicking on tool palettes to reach tool settings, or changing the look of the cursor when it passes over certain objects.

Finally, version 2.0 improves FaceSpan's scripting environment, adding find and replace, direct access to AppleScript formatting, enhancements to the text editor, and direct access to scriptable applications' Apple events dictionaries.

Clever Treasures

FaceSpan is extensible and full of interesting but nearly invisible features. For example, with a little help from a resource editor, you can make menus hierarchical. The menus automatically work the same as standard menus, so no special scripting techniques are required. Another almost unnoticeable feature lets you log your application's events and messages by setting a string resource to the path of the log file.

Forms and Key filters—plug-ins that change how FaceSpan's objects look and behave—are useful additions to projects. For instance, FaceSpan provides several forms that turn gauges—which normally look like scroll bars—into progress bars, sliders, and increment arrows. (One example is a slider whose tab is a tiny starship *Enterprise* that slides back and forth on a background of stars.) You can also import scripting additions as forms, thus eliminating the need to bundle or install them separately. And not surprisingly, you can write custom forms that extend the capability of your application.

Few Drawbacks

Besides the difficulty of using some of FaceSpan's advanced features, there are only three problems worth mentioning. Applications created with FaceSpan have no native printing capability—you have to script printing functions into your application if you want it to print. Also, FaceSpan provides no built-in function for printing out all of a project's scripts at one time—making it difficult to document a complex project. And in Design mode, you cannot drag and drop items between windows; drag imported pictures into frames; or drag text between text boxes, lists, and tables.

Future versions of FaceSpan should focus on better interfaces and clearer documentation of its subtler features, such as forms and formats. Online or balloon help would also be useful.

The Last Word

Once you're accustomed to its quirks, though, FaceSpan is an excellent interface builder. In fact, according to the company, FaceSpan's interface is generated using many of the same services available to the applications you create—strong testimony to its capability. The new storage items, tables, and drag-and-drop functions make stand-alone applications easier for you to create and for people to use. No longer must your AppleScripts run with a plain interface or no interface at all; FaceSpan lets you create sophisticated applications.

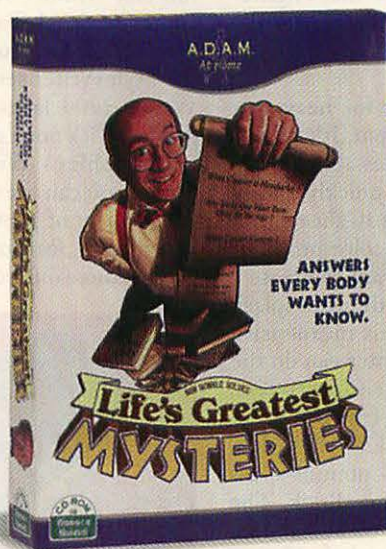
—TIM WARNER

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Apple Color StyleWriter 2200

Portable Ink-Jet Printer

PROS: Lightweight; sharp, laser-quality output; QuickDraw GX-compatible. **CONS:** Color ink tanks have extremely short life; must replace all ink colors at the same time; no output tray; battery and battery attachment sold separately. **COMPANY:** Apple Computer (408/996-1010). **COMPANY'S ESTIMATED PRICE:** \$419.



TAKE ALL THE BEST FEATURES OF THE Apple Color StyleWriter 2400, pack them into a tiny black case that's lighter than a PowerBook Duo, then lower the price by about \$100—and you have the Color StyleWriter 2200.

This is not a printer for heavy (or even moderate) color output. It's slow—printing a color page takes about three minutes. It runs out of ink quickly, and its paper feeder maxes out at 30 sheets. But if you need an occasional color proof, or you're on the road and want to create a presentation or report with just a splash of color for emphasis, this inexpensive portable color ink-jet printer can do the job, producing rich color and sharp text.

The 2200's sleek black case is only 2.2 inches high and less than 12 inches wide, and it weighs just over 3 pounds—less than even the lightest PowerBook. The top of the case folds up to become an input tray for automatic feeding. Unfortunately, the unit doesn't offer an output tray; pages simply roll out the front of the printer and spill onto the table (or floor, if you're not careful).

For true portability, you can also run the 2200 using a nickel-metal-hydride battery, which comes with its own optional attachment unit (\$129) that screws onto the back of the printer, and allows you to print up to 200 pages on a charge. Even with the battery and the attachment unit, the 2200 weighs just over 4 pounds—still light enough to tote around in a briefcase.

The 2200 prints in color using a single cartridge that holds the cyan, magenta, and yellow inks in separate tanks; the black ink is contained in a separate cartridge. Installing the ink cartridges is an easy, mess-free job: all you have to do is pop open the front of the printer and snap them into place. The 2200 even comes with a small case for safely carrying partially used ink cartridges when you're on the road.

For an ink-jet printer, the 2200 produces an impressive range of well-satu-

rated colors. The problem is that the tiny ink tanks don't go very far. In fact, during my tests I ran out of yellow and cyan inks after printing less than a dozen color pages.

This brings us to the 2200's biggest drawback: when you run out of an ink color, you have no choice but to replace all the colors at once (except black), because they are all contained in a single cartridge. In my case, I still had plenty of magenta ink but had to replace it just the same. A color replacement cartridge lists for \$29, a black one for \$15.

Despite its compact design, the 2200 offers essentially the same features as the full-size Color StyleWriter 2400. It comes with 64 TrueType fonts and is QuickDraw GX-compatible. (Like all of the StyleWriter series, the Color StyleWriter 2200 lacks a PostScript interpreter, so it's not a good choice for high-end graphics.) With the 2200 printer driver, you can tile up to four pages on a single sheet of paper, print with custom watermarks, scale output to any size, and print at three different resolutions. At the



KEVIN CANDLAND

highest resolution, the 2200 prints black text at a razor-sharp 360 by 720 and graphics at 360 by 360.

As with all ink-jet printers, the type of paper you use with the 2200 dramatically affects the quality of output; smooth-finished papers work best. The printer comes with a 200-sheet supply of Apple's own premium coated ink-jet paper, which produces superior results. It also comes with a package of high-gloss paper and transparency stock for creating overheads.

The Last Word

Obviously, with its slow processing speed and limited ink-tank capacity, the 2200 isn't a printer for serious color proofing. But for occasional color output, the Color StyleWriter 2200 is a good value—a printer that produces professional results on your desktop and on the road.

—JOSEPH SCHORR

HyperCard 2.3

Authoring Tool

PROS: Inexpensive, powerful, and extensible; many multimedia tools included; many tasks can now be performed without scripting. **CONS:** Color still not fully integrated; not cross-platform; some bugs in bundled programs. **COMPANY:** Apple Computer (408/996-1010). **COMPANY'S ESTIMATED PRICE:** \$129.



EVER SINCE IT WAS BUNDLED with every Mac in the late 1980's, HyperCard has been difficult to categorize.

Today this combination free-form database, programming language, and interface builder has all kinds of interesting and unusual applications, but it's probably most widely used as a multimedia authoring tool. Unfortunately, HyperCard has fallen behind in the software genre it helped define. The latest release, 2.3, addresses many of the needs of today's users without sacrificing HyperCard's look, feel, and spirit.

According to Apple, the big news is that HyperCard has been rewritten in native mode for the Power Mac. In practice, this doesn't translate into the performance increases you might expect. Some tasks are noticeably faster, but overall HyperCard still suffers from slowness, especially when you use it with color tools and large font collections.

Version 2.3 includes a set of color paint tools identical to those found in AddMotion II, the animation program by Motion Works that was bundled with HyperCard 2.2 (it also comes with 2.3). Although handy for authors who don't want to switch out of HyperCard to create or edit color images, it doesn't hide the fact that HyperCard is still a monochrome program. It adds color images to black-and-white stacks after you're done creating them. You can't print color images or view them in the Go Recent dialog box; you can't even see color images on screen unless HyperCard's memory partition is set to at least 5MB.

The most important change in version 2.3 is the addition of Button Tasks. Button Tasks automate a variety of tasks without scripting, making it easier to use for beginners who want to produce impressive multimedia results quickly.

It's always been easy to program HyperCard. For example, to design an on-screen button that takes a user to

continues

Introducing Windows 95.
It lets you drop files anywhere
you want on the desktop.

Imagine that.



another card, you could just click on the Link To button in the Button Info dialog box. In version 2.3 (using System 7.1 or later), a button named Tasks replaces the Link To button. Tasks lets you tell a button what to do when someone clicks on it. There are new options, ranging from the simple “Go to the next card” to complex sound and video presentations. There’s even a Speak Text Tasks option that reads aloud using Apple’s PlainTalk voices (included).

The built-in tasks, which you can program simply by filling in dialog boxes, are especially valuable for beginners and occasional HyperCard users who don't want to master HyperTalk, HyperCard's built-in programming language.

HyperCard includes another Motion Works package: Multimedia Tools, a diverse collection of utilities for working with audio and video (see *Macworld*, July 1995, for a review of Multimedia Utilities 1.1). Multimedia Tools is functional and useful, but it has a few bugs.



Programming without Scripting Button Tasks let you program on-screen buttons to perform a variety of tasks: HyperCard writes the scripts for you.

We were unable to complete an animation using AddMotion II. The Mac repeatedly froze before it could finish; users have reported the same problem in online forums. (Motion Works never returned our call for help.)

HyperCard 2.3 is reliable and stable for most applications, but it is not without problems. Shortly before press time Apple released a patch (2.3.1) to repair an obscure bug that caused crashes when colorized stacks were saved on one Power Macintosh and run on another.

The Last Word

The new features, streamlined interface, bundled programs, and lower price make HyperCard a good value for anyone interested in developing multimedia applications. If you can live with an authoring environment that treats color as an afterthought, and you're not producing multimedia presentations that work on both Mac and Windows machines, HyperCard is hard to beat.—GEORGE BEEKMAN, WITH HELP FROM MARK DINSMORE

Now Up-to-Date and Contact 3.5


Personal Information Manager

PROS: Improved To-Do List in Up-to-Date; new QuickPad improves coordination of events.

CONS: Can't customize Up-to-Date tool bar; no tool-bar button to open graphics palette.

COMPANY: Now Software (503/274-2800).

COMPANY'S ESTIMATED PRICE: \$99.



WHILE NOW SOFTWARE'S enhancements to its popular address-book and calendar programs still don't herald the arrival of the perfect contact-management system, features like an improved To-Do List and the new QuickPad solidify the Now Contact 3.5 and Now Up-to-Date 3.5 bundle into a market leader.

The most noticeable improvement to the Up-to-Date calendar program is a new To-Do List that, with just a quick glance, provides a scorecard of daily tasks. In previous versions, to-do lists were confined to the narrow cells representing days on the calendar, but now you can display to-do's in all but the year view—complete with check boxes, in a large column bordering your calendar. You can reorder your tasks by dragging a to-do item into a new position, allowing you to prioritize your daily assignments visually. Click on a to-do check box once, and the To-Do List displays a mark in the box to indicate an activity in progress; click on the box twice to indicate a completed task, and the to-do item leaps to the bottom of the list, where it's separated by a perforated line (see "To-Do Today").

Each time you select a day in your calendar, the To-Do List updates to show that day's charted tasks. When you don't complete tasks on the assigned day, Up-to-Date automatically moves them to the top of the next day's list (ad infinitum—for all of us chronic procrastinators).

The Up-to-Date interface still suffers from some quirks. Despite the improvements to the To-Do List, you can't opt to simultaneously see lists from multiple days. And you still can't customize the tool bar, which also lacks a button for quickly opening the graphics palette (see *Reviews, Macworld*, April 1995).

QuickPad is a new notepad application that runs independent of, yet is integrally linked with, both Now Contact and Up-to-Date. You activate QuickPad from another application via a keystroke that you define, or by selecting QuickPad from the Apple menu. A field-based notepad appears on screen that allows you to create a new appointment, to-do, call, or note. When you save the new event, QuickPad conveniently attaches a note to the associated contact and updates the calendar without launching either parent program.

QuickPad features SmartWords to speed the creation of notes and their integration with Now Contact and Up-to-Date. For instance, when you type the SmartWord *with* in a note's Title field, followed by a contact's name, QuickPad automatically searches the primary contact file for all matches, filling in the first match's contact information at the bottom of the note. If the first match isn't the correct contact, you can use the Find Contact button to select the proper person from the full list of matches.

Once you've selected the appropriate contact and saved your note, QuickPad immediately attaches a note to the contact record and updates your calendar to display, say, your noon lunch date.

You can even add new entries to your primary contact file via QuickPad without launching Now Contact. Unfortunately, the new contact record doesn't appear in your contact list until you click on the Find All button.

The Last Word

If your office is still draped with random paper notes because computer-based PIMs seemed like too much work, give Now Software's bundle a try.

—MICHAEL FAINTER



To-Do Today Now Up-to-Date's new To-Do List lets you quickly see accomplished and remaining tasks, and QuickPad allows you to manage notes without launching either parent application.

Introducing Windows 95.

It has a trash can you can open
and take things back out of again.

Imagine that.



FreeStyle 1.01

Music Sequencer with Notation

PROS: Easy-to-comprehend player metaphor; unique, hands-off music-entry methods; excellent manual, online help, and an instructional video. **CONS:** Lacks lyric tools; inflexible key- and time-signature editing; some notation limitations. **COMPANY:** Mark of the Unicorn (617/576-2760). **LIST PRICE:** \$200.



SOFTWARE SEQUENCERS—PROGRAMS that record, edit, and play back musical data from a MIDI instrument—have always had an image problem. Connecting a Mac and a keyboard synthesizer is a tricky business, and sequencers sometimes seem to be written for recording engineers rather than musicians.

FreeStyle's FreeMIDI extension facilitates installation by identifying the MIDI instruments connected to your system. FreeStyle recognizes most General MIDI instruments and organizes the sounds into players—a metaphor that's easier to grasp than tracks and patches.

You begin a composition by choosing an ensemble, from calypso band to full orchestra, adding or deleting players as needed. You move from player to player as you write parts; all channel and patch switching takes place transparently, without intruding on the creative process.

Each player is represented by a line of controls in the Ensemble menu. To record your pianist, for instance, click on the corresponding record button, then click on the transport record button. The metronome starts, and you're recording piano sounds from your instrument.

Most sequencers make you set up tracks for each alternate take, but FreeStyle holds all your takes for each player in the Ensemble palette until you erase them—a boon to perfectionists. You can mix and match portions of the takes, accessible from a pull-down menu. You also change players and adjust volume, pan, or solo/mute status in the Ensemble palette.

In the Loop

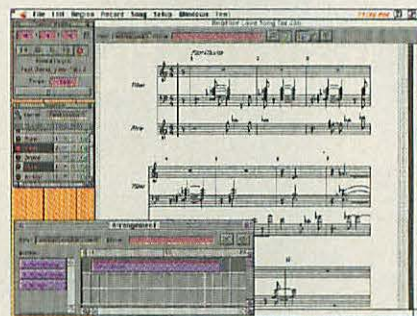
FreeStyle records music loop-style in sections. Play back one player's part, and the program cycles to the beginning of the section so you can listen to what you've got, record another take, or switch to another player for the next pass. You then assemble sections, like building blocks, into a song using the Arrangement window. And once your song takes shape, you can play a solo part over all the sections.

FreeStyle's editing features are as robust as those found in most high-priced programs. FreeStyle quantizes note values in a straightforward way, creating a more natural sound and also letting you control the degree of swing the notes have. You can grab and drag notes and pitches to change their values, in the piano-roll and notation views. Graphical MIDI-controller data appears in its own window, and simple draw tools let you change note velocity (articulation), reverb, chorus, and other variables.

My favorite feature is the ability to define a clump of notes on the MIDI keyboard that triggers a predefined playback or recording function, much like a Mac keyboard shortcut. Learn a few simple codes and you can compose oblivious to the Mac, which records and plays back at the direction of your clump commands.

Notation

FreeStyle is intended for composing, not notation, yet its printed music is a joy to behold. The supplied font is beautiful, beams break correctly, and two-handed



Duly Noted With FreeStyle's elegant notation behind, the active Arrangement window shows the drag-and-drop sections used to make up a song. The Ensemble palette displays the transport buttons on the Control palette and the take numbers.

parts split automatically across staves. Parts transpose perfectly. On the downside, you can't mark dynamics or articulation; you can't manually respace notes. For professional-looking output, you must export your composition to a notation program in standard MIDI format.

The Last Word

The lack of a lyric tool for attaching words to their assigned notes prevents FreeStyle from becoming the songwriter's tool of choice. And you can't change keys or time signatures within a single file. Still, no other sequencer in this price range matches FreeStyle in power, innovation, or ease of use. It's the clear choice for the beginning user or the experienced composer looking for a quick and easy way of getting musical ideas into the computer.—RICHARD FENNO

ColorDrive 1.0

Color-Management Software

PROS: Supports a broad range of color models; exports color palettes for most graphics applications; contains full Pantone color libraries. **CONS:** Inconsistent color accuracy; system depends on ColorSync profiles that are not available for all monitors and printers. **COMPANY:** Pantone (201/935-5500). **LIST PRICE:** \$199.

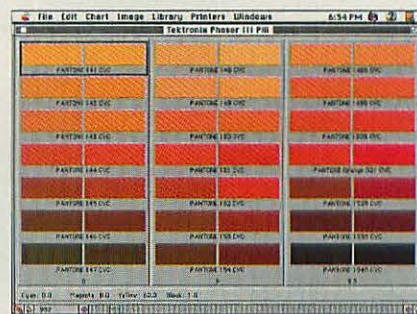


ACHIEVING COLOR ACCURACY in the world of desktop publishing can be infuriating; what you see is rarely what you get. Pantone's ColorDrive strives to improve this situation. It won't eliminate all of your color-accuracy headaches, but it does make color management easier and helps you get more predictable results from your color-proofing devices.

ColorDrive provides a central mechanism for defining colors and setting up color palettes for desktop publishing applications. With ColorDrive, instead of creating separate color palettes for each application, you can define one set of colors, calibrate the colors to your printer, and then save your palette in any of 14 formats to use in desktop publishing and graphics programs. You can also output palettes in TIFF or EPS formats. This centralized system is a real time-saver.

ColorDrive allows you to create and edit colors in a broad range of color models—CMYK, RGB, and HSL—as well as the less common YIQ (a standard used for broadcast video) and several color spaces developed by the International Commission on Illumination. You can define color in terms of raw spectral data, or input new colors using a spectrophotometer.

Once you've chosen the colors to include in a palette, ColorDrive's Match continues



Matchmaker In this example, the swatches on the right show the original colors, and the swatches on the left show how the colors will look when printed on a Tektronix Phaser III PXi.

Introducing Windows 95.
It lets you use more than eight
characters to name your files.

Imagine that.



to Printer command uses ColorSync printer profiles to reset each color's CMYK values for optimum printed output. On screen, ColorDrive shows each original color next to a simulation of how that same color will print to the device you've selected. In my tests, ColorDrive's calibrated palettes provided a close (though certainly not perfect) match between screen color and output.

If your monitor has a ColorSync profile, ColorDrive also allows you to proof your color output on screen alone. If you open a palette (or a PICT or TIFF image) and select one of the 32 printer-specific calibrated libraries from the Printers menu, ColorDrive displays a simulation of how the palette or image will look when printed on the device you've specified. This can be quite handy, since you can anticipate the output of a job without having a particular printing device in-house. But beware: without an accurate ColorSync profile for *both* your printer and monitor, ColorDrive's color-correction features are worthless.

ColorDrive's simple interface makes building and customizing palettes easy. You can drag and drop color swatches into any position on a palette, and even drag swatches from palette to palette. Double-clicking on a color allows you to edit it. You can define the number of color swatches that appear on each page of a palette, display colors with either full or shortened names, and search for colors by name. You can also print your palettes to create calibrated color charts.

The program comes with its own library of Pantone Color System palettes, including the Pantone Matching System (PMS) for coated and uncoated stock, as well as PMS Metallic Colors, Pastel Colors, and the Pantone Process Color System. By tapping into this library, you can specify a Pantone color, then use ColorDrive to calibrate that color to your printer to ensure that your in-house proofs provide the most accurate color reproduction possible. The Find Closest Match command lets you create a new color from scratch and then automatically finds the nearest matching Pantone color.

The Last Word

Even with ColorDrive, your color output won't always be what you might expect; variations in printing inks, paper quality, monitor settings, and lighting conditions make it impossible to achieve truly consistent color on the desktop. But ColorDrive's calibrated palettes do produce more-predictable results on color printers, and the program's centralized palette creation unquestionably streamlines color management.—JOSEPH SCHORR

Smart Label Printer EZ30

Label Printer

PROS: Small; convenient; easy to use.

CONS: Poor print quality; slow. **COMPANY:**

Seiko Instruments USA (408/922-5800).

LIST PRICE: \$199.



UNLESS YOU HAVE A DEDICATED printer within arm's reach, the task of addressing a single envelope or labeling a handful of file folders can transport you back to the age when typewriters roamed the earth. Seiko Instruments attempts to address this quandary with its simple, inexpensive, and compact Smart Label Printer EZ30. Unfortunately, the printer's slow output and poor type quality make it a poor solution.

Seiko markets the EZ30 as a lower-cost alternative to its \$299.95 Smart Label Printer Pro (see *Reviews*, *Macworld*, May 1994). The EZ30 is a monochrome thermal printer. It's compact (about 7 by 4 by 6 inches) and looks like a cross between a rotary card file and a truncated Dustbuster. With its clean, convenient interface and Chooser-level printer driver, the EZ30 moves labeling tasks from the physical to the virtual desktop—in the process

retail price for two rolls (130 labels each) of standard white address labels is \$10.

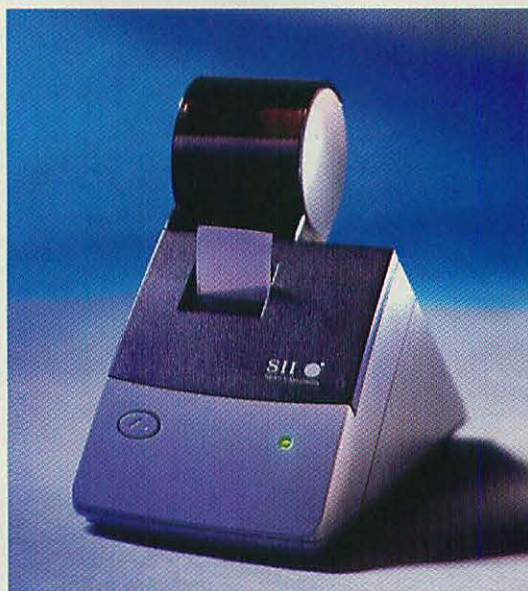
Creating labels with the EZ30 involves little more effort than typing in text. You can create, format, and edit labels individually or in lists without exiting the software's dialog box. You can save lists created within the program and then easily access them from a pop-up menu. Create custom templates by dragging and dropping text fields (such as a return address), pictures, and automatically generated postal bar codes onto a WYSIWYG label form. You can also print to the EZ30 from other applications, although reformatting may be required. (If you print from a word processor, for example, you must insert a page break between labels.) Using the printer's import function to print files generated in other applications is generally simpler.

Though creating labels is easy with the EZ30, both its output quality and its speed are disappointing. Printing ten address labels at normal resolution with a bar code but no graphics took close to 6 minutes. And whether printing in draft, normal, better, or double resolution, the EZ30 yields jaggy text. The unit I tested performed erratically—sometimes dropping a line down a tad after printing the first few characters, sometimes missing a pass on the ink output. Thinking I might have a defective printer, I requested a second unit, but it produced the same results.

Labels created on the EZ30 won't win any beauty contests, but they are readable. I can't say the same for the bar codes it produced. The manual asserts that the EZ30 generates scannable bar codes, with the caveat that infrared bar-code scanners cannot read bar codes printed on thermal paper. But I had no luck getting a visible-light scanner to read the bar codes I produced using the font Seiko supplied.

The Last Word

If you think that buying a dedicated label printer is worth your while, you're probably best off forking over the extra bucks for the Smart Label Printer Pro, which boasts improved speed and print quality. The EZ30 is suitable only for small jobs requiring so-so output, or when you just can't face that long walk to load Avery labels into the laser printer.—BECKY BOND



RICHARD WETHEIMER

monopolizing less of your space and time.

The EZ30 supports four label formats—Standard, File Folder, VHS Spine, and 8mm DAT—but it requires Seiko's own thermal SmartLabels, which you can order from the company or from selected dealers. Standard labels, such as Avery's, are not supported. The suggested

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For people who don't use a Macintosh® computer, the most significant development in years has finally arrived. It's very big news. It's called Windows 95.

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For many of the companies that design and manufacture PCs (or write operating systems for them), the biggest challenge of all is simply getting multimedia to work.

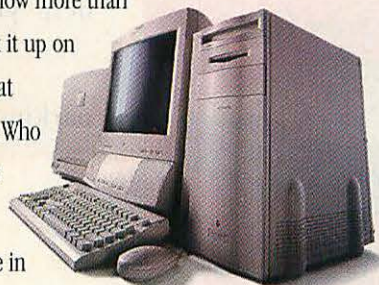
Meanwhile, ordinary people who turn on a Power Mac can do a lot more than run snappy new multimedia titles. They can create 3-D graphics, use voice recognition, videoconference across continents, even get started with virtual reality — all at the touch of a few keys and a click of a mouse. Because you can get these so-called "future" technologies in a Power Macintosh, today.**



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If they want to know more than that, tell them to look it up on the World Wide Web, at <http://www.apple.com>. Who knows, they just might get a peek at what Windows will look like in another decade or so. Imagine that.



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Icefields 2.3

Stochastic-Screening Software

PROS: Inexpensive stochastic-screening solution; supports clipping paths from Adobe Photoshop; easy control over dot size; useful, if clunky, calibration tool. **CONS:** No support for object graphics or hi-fi color. **COMPANY:** The Color Partnership (619/259-8688). **LIST PRICE:** \$895.



ONE OF THE HOT TOPICS OF DISCUSSION that's been circulating in the desktop publishing world lately is frequency-modulated (FM)—or *stochastic*—screening. Stochastic screening is an alternative to traditional halftoning that improves the detail in printed images, increases the range of printable colors, and totally eliminates the moiré patterns that process-color separations are prone to.

Stochastic screening works by varying the number of dots in an area to adjust tint percentages (as opposed to traditional halftoning, which employs a grid of variably sized dots). Stochastic screening is often better than traditional halftoning for quality printing, flexography, and silkscreening.

Two years ago stochastic screening became available as a pricey add-on for imagesetters. Icefields embodies an alternative, and much less expensive, approach. This application is amazingly simple: it reads gray-scale and CMYK TIFF files and spits out stochastically screened files in DCS (desktop color separation) format.

You then place these DCS files in an Adobe PageMaker, QuarkXPress, or similar document, and the files print with stochastic screening on any imagesetter or laser printer. This latest version supports clipping paths from Photoshop, so you can silhouette one element, screen it stochastically, and drop it on top of a normally screened image. The resulting image—say, a figure against a mountain backdrop—combines two different screening methods.

The most obvious advantage of Icefields' approach over imagesetter-based screening is Icefields' ability to screen images on inexpensive Macintoshes and then print to any imagesetter. In addition, you can easily control the resolution of the stochastic screen for different paper stocks and printing conditions, and you can combine stochastic and conventional screens on a single page (or, by using clipping paths, within a single image).

Icefields 2.3 addresses one of the bugaboos of stochastic screening—a grainy appearance in flat tints—by providing a second-order screening option. There's also a handy little calibration tool that lets you ensure that the tint percentages you get from the imagesetter (or printing press) are the ones specified in the image file.

Icefields' convenience, economy, and flexibility do not come without a price. The program can't process object-oriented graphics such as EPS files from Adobe FreeHand or Illustrator, only TIFF files. This is not a huge problem, however, since the flat tints in object-oriented graphics often look better when you use traditional halftoning.

A greater failing is Icefields' inability to process hi-fi color images—those separated for high-quality printing with six or seven inks. The lack of moiré patterns with stochastic screening makes it essential for hi-fi color, so the processes are often thought of in tandem. But because there is currently very little software available to create hi-fi separated images, this is not a major drawback.

The Last Word

If you generally print at 200-lpi resolution or lower and have been wanting to

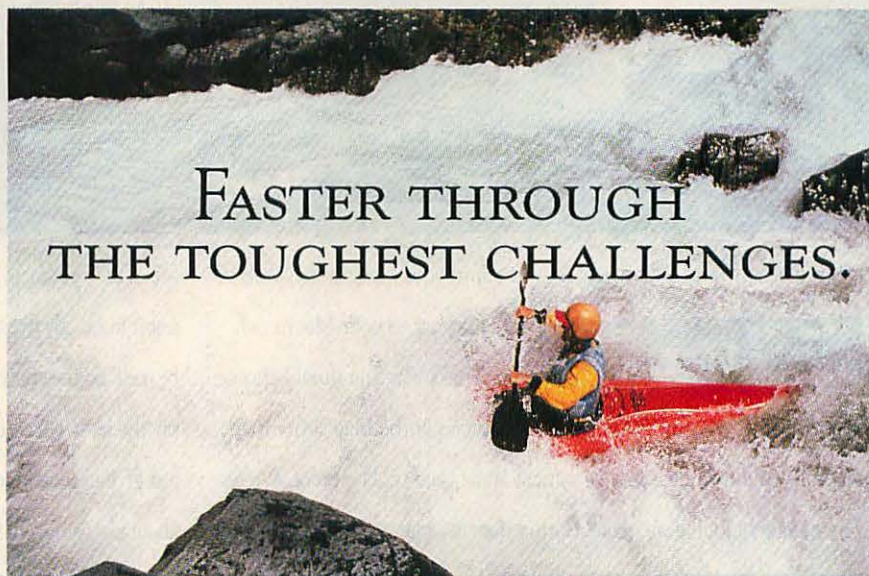


Stochastic versus Traditional Screening The left half of the earth is a CMYK TIFF image screened using Macworld's normal 150-lpi halftone screen, produced on a PostScript imagesetter. The right half is a 600-dpi stochastic screen, built with Icefields and saved in DCS format.

experiment with stochastic screening, you might give Icefields a try. If you're a graphic designer or you run a service bureau with demanding clients, or you're a catalog producer looking to improve quality, you should almost certainly try it. But if you're a lower-end desktop publisher producing laser output, you're probably better off sticking with Photoshop's diffusion dithering.

—DAVID BLATNER AND STEVE ROTH

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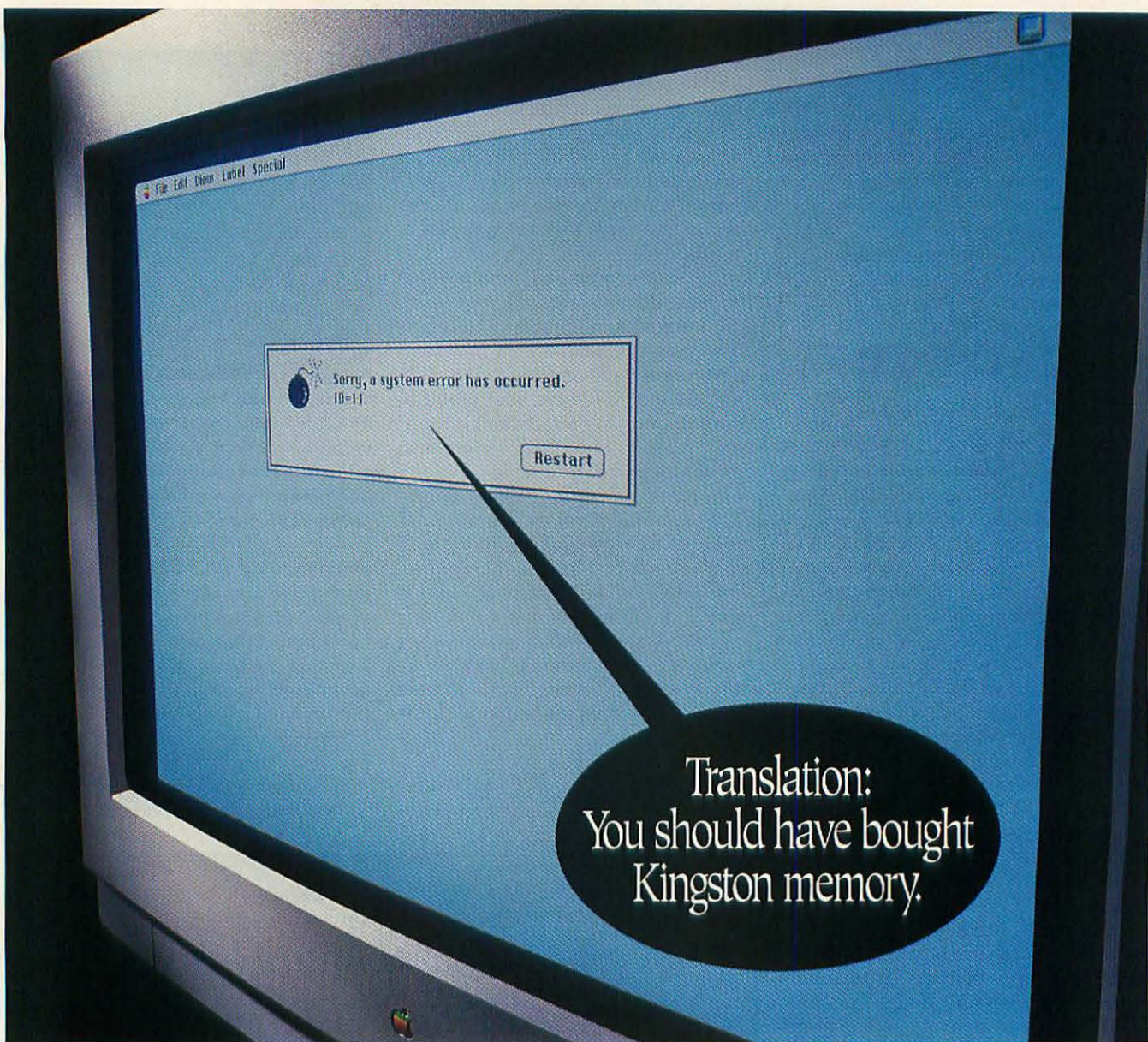
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Transverter Pro 3.0

Graphics-Conversion Tool

PROS: Supports batch processing; handles PC and Mac PostScript files. **CONS:** Occasional glitches. **COMPANY:** TechPool Studios (216/382-1234). **LIST PRICE:** \$395.



EVERY SO OFTEN A PROGRAM COMES along that is a must-have for graphics and publishing professionals. Transverter Pro (T-Pro) is one of them.

T-Pro is a PostScript interpreter and translator. It reads and opens files in Adobe's PostScript page-description language—the native language of most laser printers and imagesetters—and displays the contents on your monitor, giving you an accurate preview of how the file will be rasterized when it is printed. T-Pro can open PostScript files created on both Macs and PCs and can also open encapsulated PostScript files.

T-Pro can convert PostScript files into editable TIFF; PICT; JPEG; EPS; or Adobe Illustrator 3.0, 1.1, or 88 files. This simple but powerful file-conversion tool is perfect for service bureaus or publishing houses that need to convert images, graphics, and page layouts from one format to another.

Using the program is a breeze. T-Pro's Viewing Window displays the contents of the open files, while the Status Window reports activities—including which files have been opened, which fonts are used (or missing) in a file, and any PostScript errors that have occurred. The program's viewing options vary according to the type of file you open. The options allow you to set the size, orientation, color depth, and resolution of the rasterized image. T-Pro can rasterize images at up to 720 dpi.

Once the image is open, you can magnify and view any portion of the file. If the PostScript file has multiple pages, you can view each page individually.

To convert the file into a new format, there are several sophisticated exporting options. For example, when exporting into EPS or Illustrator format, T-Pro can convert text from fonts to editable outlines. You also can selectively filter out bitmaps, paths, or text during conversion. Best of all, you can export a selected portion of a file. So, for example, you could select a company logo in one file and export the logo for use in another format.

Conveniently, T-Pro offers a Batch Convert command that lets you process

a series of images without opening each one. You can, for example, convert an entire folder of EPS graphics into TIFF files. T-Pro will place all the converted images into any folder you specify.

But T-Pro is more than just a file-conversion utility. Because it can turn any PostScript file into an editable file, you can design in virtually any program. For example, you can design type using QuarkXPress's sophisticated typographical tools, then create a PostScript file, and Transverter Pro could convert the type into a TIFF file. You could then open the TIFF file in Photoshop and apply various special-effects filters to finish the job.

T-Pro's conversions aren't flawless, however. In my tests, the program occasionally produced an incomplete conversion with objects missing, or failed to perform the conversion at all. Sometimes I had to try a conversion a few times and experiment with the export options in order to get the results I wanted. Rendering the file at a lower resolution solved a number of problems, as did boosting T-Pro's memory allocation and having the program convert text to outlines upon export. In a few cases, T-Pro could not

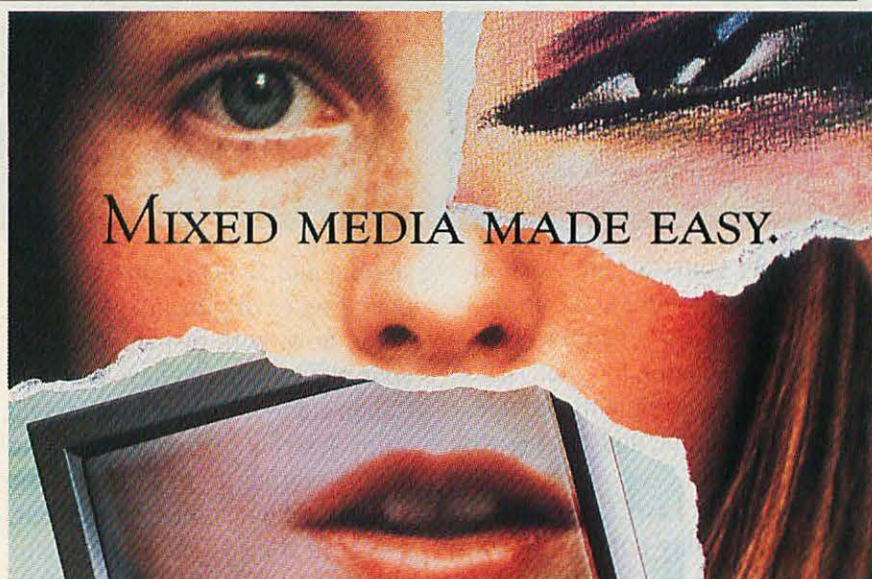


PostScript Preview Once you open a PostScript file with Transverter Pro, you can export it in another format, such as EPS or TIFF. The TIFF Options dialog box lets you choose the resolution, color mode, and antialiasing settings for a TIFF export.

accurately convert large PostScript files containing complex objects, but the program handled most of my jobs smoothly and quickly.

The Last Word

Transverter Pro deserves a place in the toolbox of every desktop publisher and electronic artist. Not only can it save the day when you're wrestling with incompatible file formats, but it also opens limitless design possibilities and lets you preview PostScript files without wasting film or paper. It's a tool I find myself using almost every day.—JOSEPH SCHORR



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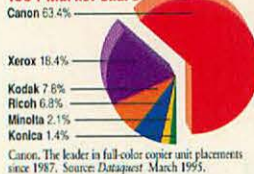
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Merriam-Webster's Collegiate Dictionary on CD-ROM

CD-ROM Dictionary

PROS: Good puzzle-solving features; powerful search command. **CONS:** Ugly interface; italics difficult to read; no audio pronunciations; rhyme-find feature incomplete. **COMPANY:** Merriam-Webster (413/734-3134). **LIST PRICE:** \$69.95.



THE PROBLEM WITH MERRIAM-Webster's Collegiate Dictionary on CD-ROM isn't the content. The 160,000 definitions are perfectly splendid, as they have been in countless printed editions. With one click, you can access an equally useful thesaurus. There are even occasional illustrations.

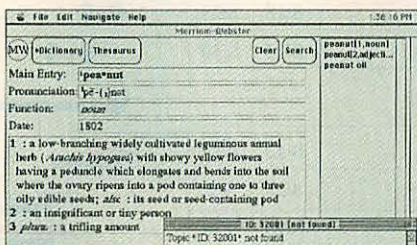
No, the disappointments stem from the conversion to electronic form. This dictionary's dual personality as both a Mac and Windows CD-ROM is the cause of much, although not all, of its unattractiveness. For example, there's no Quit command (it's called Exit). Instead of offering a pair of Mac-style radio buttons to switch between the dictionary and thesaurus, the program has two huge, nonstandard buttons; a bullet (•) appears next to the button's label to indicate that it's selected (see "Webster's Collegiate Error Message"). There's no interaction with other programs, either—you can't look something up from within your word processor (unless you're using the Windows version). And the CD-ROM itself is filled with creaky-looking generic icons with names like XWMBA400.DLL, XWMHN400.DLL, and MWED.CSC; you have to scroll to the bottom of these to locate the Installer for the Mac version. If this company is savvy enough to market a disc for Macintosh, it should be smart enough to program one.

Fonts are another problem. Not only can't you choose which font to use, but italicized words slant so steeply that the right edges are chopped off. Italics seem to be quite a bugaboo for this program's designers; in the Usage feature, the provided grammatical examples are clearly meant to appear in italics—but about every fourth or fifth example appears in roman type.

Another part of the program doesn't use fonts at all, much to its detriment. When you look up the Signs and Symbols reference, you get screen after screen of *scans*—pages from some reference book, in a tiny point size, that were dig-

itized so crudely they're barely legible.

The biggest missed opportunity of this CD-ROM, however, is the pronunciation guide. "No system of indicating pronunciation is self-explanatory," declares the built-in help before launching into a 17-page explanation of its own user-hostile system. (Would a nonlexicographer know what pronunciation is indicated by 'fäks-äträt?') But there *is* a self-explanatory pronunciation system—it's called *sound*. Why even bother creating a CD-ROM dictionary without providing a recording of each word's pronunciation?

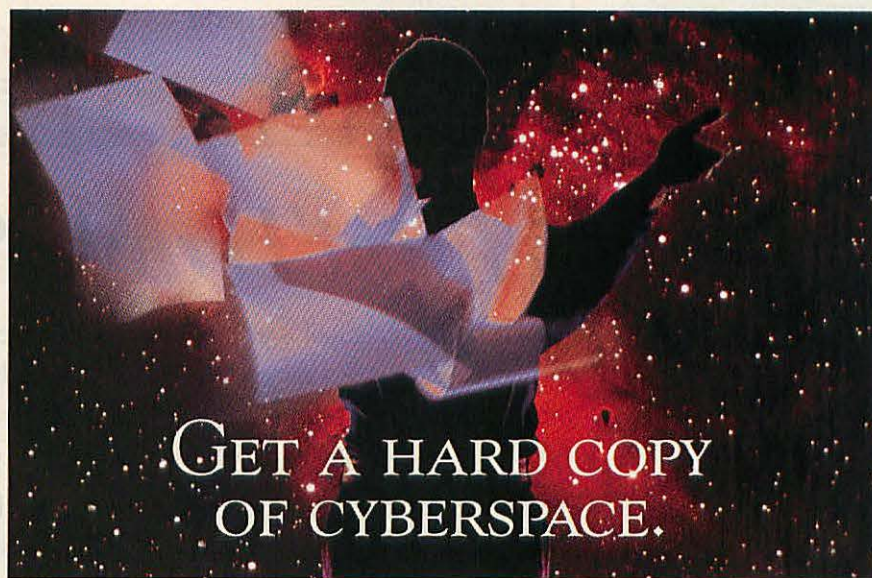


Webster's Collegiate Error Message The Merriam-Webster CD-ROM's built-in help needs help; several of the help topics, such as the Index (lower-right window), reward you with a very unhelpful message.

On the other hand, while this CD-ROM fails as a Macintosh program, it certainly excels as a pure database. You can search for any combination of word information. For example, you could search for all words with French derivation that came into use in the 1800s. You can search for rhyming words, although the resulting list is strangely incomplete (*licks* and *kicks* don't show up as rhymes for *six*). And word-puzzle lovers will be in heaven; this program solves crossword-puzzle stumpers, anagrams, and other word mysteries almost instantly.

The Last Word

The nearly identical America Online version of the Merriam-Webster dictionary costs next to nothing; use keyword **Webster** to try it out. The paperback edition of this same dictionary costs \$6; the hardcover is \$25. Paying nearly \$80 for an electronic edition gains you powerful search features, but sacrifices readability, portability, and the ability to see neighboring words on the same page. If your heart is still set on a CD-ROM dictionary, this one's competitors know a better definition of the word *quality*.—DAVID POGUE



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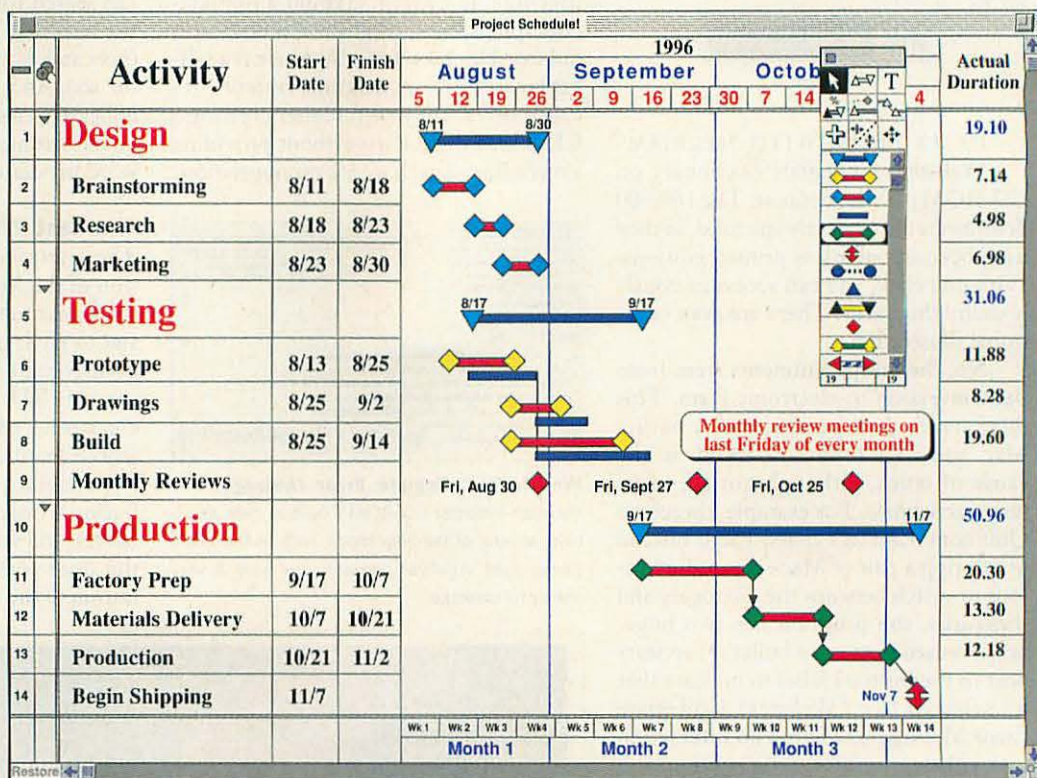
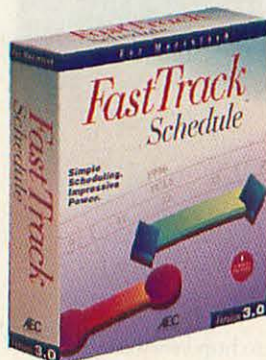
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AddDepth 2.0

3-D Effects Software

PROS: Easy 3-D illustration; Wizard routines automate graphic design. **CONS:** Limited drawing tools and rendering capabilities. **COMPANY:** Ray Dream (415/960-0768). **LIST PRICE:** \$99.



A SIMPLE PROGRAM FOR CREATING three-dimensional type and graphics, AddDepth 2 automatically extrudes and bevels 3-D objects from 2-D outlines and builds text objects from both TrueType and Adobe Type 1 fonts.

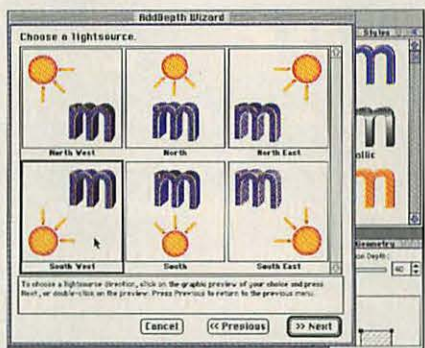
You can manipulate objects, dress them up with colors and textures (Styles), adjust lighting and perspective for the composition, and print out the results at the full resolution of a PostScript output device.

The Wizards, new routines that automate illustration design, make AddDepth easier to use than ever. The Template Wizard provides more than 100 completely customizable design templates to which you add your own text. The Step-by-Step Wizard automates the creation of text objects. You choose preset options for extrusion

depth and beveling, for object rotation and perspective, for surface styles, and for light-source orientation. Just type in your text and you're done. (However, you can access the Wizards only by creating a new file.)

Also helpful is the new wire-frame mode, which lets you quickly reposition objects for final composition. Intended to give 680X0 Macs a speed boost, this fast-draw mode is useful on Power Macs as well: even on a 7100/80, complex objects in shaded mode can redraw quite slowly.

AddDepth's drawing tools are limited—although it has a Bézier tool, it lacks tools for straight lines and free-form polygons. The program does import outlines in Free-Hand, Illustrator, and PICT formats, as



Automated Text AddDepth's Step-by-Step Wizard automates building 3-D text objects.

well as the WMF, CGM, and CDR formats used by Windows-based packages. However, you must convert text on curved paths to outlines before importing it to AddDepth. And while the program lets you export files back to illustration packages, complex extruded objects can become unwieldy if they're ungrouped for editing.

AddDepth 2 comes with 30 typefaces and 200 clip-art objects, but you must copy and paste such objects to the working document. Also, AddDepth identifies clip-art files by number, so you must look them up in the manual. Why not a drag-and-drop floater—or at least a preview thumbnail in the Get File dialog box?

AddDepth's Styles produce flat shadings and gradients that you can apply to individual object bevels and faces. You can also decorate objects with graphic "decals" and make surfaces invisible to simulate transparency. Overall, the Styles are fine for illustrations, but don't expect the subtle texturing offered by 3-D rendering packages.

The Last Word AddDepth 2 provides an easy way to add simple 3-D effects to illustrations—and at \$99 it costs substantially less than the original \$179 version. A great addition to AddDepth, the Wizards give novices a good start in graphic design, while illustration veterans can use them as shortcuts to more-complex constructions. —CARLOS DOMINGO MARTINEZ

Here & Now 1.0

File-Transfer Utility

PROS: Makes putting a Macintosh disk in your PC as easy as dropping bread in a toaster. **CONS:** Creates incorrect DOS file-name extensions if Mac document title contains periods. **COMPANY:** Software Architects (206/487-0122). **LIST PRICE:** \$89.95.



WE'RE LIVING IN A CROSS-PLATFORM world. Since 1988, when Software Architects' DOS Mounter utility appeared, your friends with PCs have been able to give you PC disks to use in your Mac, provided you both had the same software. But you couldn't give them a Mac disk in return.

Software Architects has rectified that with Here & Now, a nifty utility that does just one thing, but does it extremely well: it lets you transfer Macintosh files created with one application to a PC running the DOS or Windows version of the same app.

When you install Here & Now's single disk, it modifies your PC's autoexec.bat file so the drive can read Mac disks automatically. You can look at Mac documents using Windows' File Manager or by launching the

Here & Now file viewer. The viewer is useful: it lets you see the original Macintosh file name along with the truncated DOS name that Here & Now creates for you.

To truncate file names, Here & Now lops characters out of the middle of the Mac name, adds a ~ (tilde), and generates a random two-character string before the extension. This works fine except when you transfer a group of files that all begin with the same eight letters (such as *Macworld*). Then you end up with cryptic names like *macwo-iv.xls* and *macwo-zx.xls* on the PC, and you won't be able to differentiate files based on their names alone.

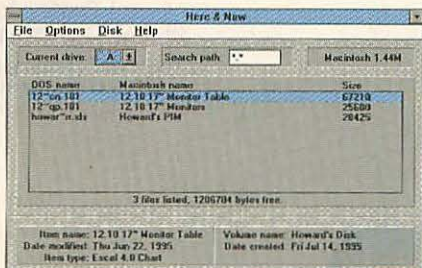
Mac file names that include periods can also cause problems, because Here & Now uses the dot to truncate the name for the PC. For instance, Here & Now renames a Mac document discussing 28.8-Kbps modems, called *overview 28.8*, as *overv~vz.8* rather than adding, say, the appropriate .doc extension for a Word file.

But for what really matters—accurate and speedy file transfers—Here & Now is a winner. Opening up both spreadsheets and word processing files on my Compaq 486/66, I got clean, accurate text in the same typeface without any problems. (On one spreadsheet, though, some asterisks appeared as plus signs.) And Here & Now is so easy to use that its well-written manual is practically overkill.

Here & Now is a file-transfer utility, not a format-conversion program like DataViz's Conversion Plus or Mastersoft's Word for Word. You can't, for instance, use it to convert files from one database format to another, or from bitmaps to EPS files. Also, the same applications must be running on both the PC and the Mac for the swap to work. Fortunately, Here & Now works with multiple versions of 15 major applications, including Microsoft Word and Excel; Adobe PageMaker and Photoshop; ClarisWorks; and QuarkXPress.

The Last Word Like a toaster, a well-written utility should perform one task really well. And it should be as transparent as a pal hitting you up for a loan. Here & Now scores high on both counts.

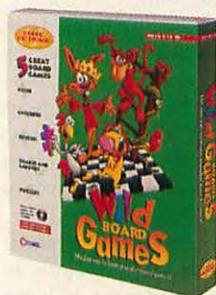
—HOWARD BALDWIN



The Long and Short of It Here & Now shows you the original Mac name (center), its truncated DOS version (left), and the file size (right).



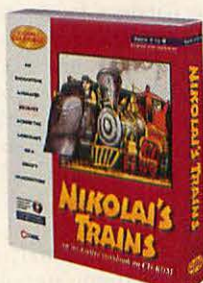
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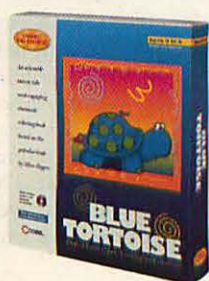
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At Ease 3.0 for Workgroups

Desktop Alternative

PROS: Easy to install and set up; remote network administration; individual application control; smart alias handling. **CONS:** Small security holes; some counterintuitive items in the Setup program; no provision for multiple sets of items in the Startup Items folder or Apple menu.

COMPANY: Apple Computer (408/996-1010).

COMPANY'S ESTIMATED PRICE: \$295.



IF YOU SHARE A COMPUTER, YOU KNOW that can mean protecting the system from other users. Apple's new At Ease 3.0 for Workgroups uses three levels of access for individual users—At Ease Panel, Restricted Finder, and Finder—each of which can be modified and saved as a custom setup for multiple users (similar to a File Sharing group). At Ease 3.0's Panel improvements include greater menu customization, smart handling of disks (including ejecting any CD-ROM not on an approved list), and the ability to mount AppleShare volumes automatically. Restricted Finder allows administrators to impose most of Panel's disk-handling restrictions. Restricted Finder users

have access to two folders—one contains aliases to approved documents and applications, the other stores new documents. Restricted Finder shares Panel's flexible, transparent-access control of CD-ROMs, floppy disks, and control panels.

Network administrators can limit all applications to opening files from and saving files to a single folder, allow different programs to access different folders, or allow all applications to access any folder the user chooses. The real advantage of version 3.0 is its remote-administration features. From a single Mac, an administrator can add, remove, and edit user information, setups, and aliases for an entire network.

The At Ease Setup program is smart enough to set the correct path to applications on client machines; it correctly configures buttons (in a Panel setup) or aliases (in a Restricted Finder setup) on each Mac. The Setup program can even substitute one version of an application for another, as long as they share the same creator tag.

At Ease still needs improving. For example, the log-in screen is user-friendly enough, but there is no corresponding log-out function: each user must restart the Mac to get his or her own privileges.

Absent is the ability to create custom



Distinguished Panel The At Ease Panel offers better network administration and more-flexible security configuration.

Apple menus and start-up items for different setups. The administrator can prevent selected start-up items from loading, but all start-up items must load if you're going to have start-up items load at all. Similarly, items in the Apple menu are accessible to all users in all setups and therefore can be modified by users with Finder access.

The Last Word At Ease 3.0 for Workgroups is not as sophisticated a program launcher as Scott Johnson's shareware product PowerBar, nor is it as powerful a file-system protector as Kent Marsh's FolderBolt and its ilk. Still, At Ease's ability to configure and administer both functions across many Macs simultaneously makes it a strong value for network administrators.—H. RANDY PATTON III

Mouse-Trak

Input Device

PROS: Solid construction; integrated wrist rest; good ball position. **CONS:** Must move DIP switches to change button functions; side buttons too small. **COMPANY:** Itac Systems (214/494-3073). **LIST PRICE:** \$179.



THE FIRST THING YOU NOTICE when you pick up the Mouse-Trak is how sturdy it feels. From the snugly fitting ball to the thick ADB cord, the Mouse-Trak looks like it's built to last. (For people who work in harsh surroundings, Itac also offers an industrial version for \$295 that sports a stronger case and extra shielding against dust and moisture.) The sloped front half of the Mouse-Trak incorporates a slightly padded rest designed to keep your wrist straight, which may help prevent repetitive-strain injuries. The Mouse-Trak's ball is also positioned at a height that makes it easy to manipulate without putting too much stress on your hand.

My biggest complaint is with the Mouse-Trak's three buttons: the two that flank the trackball are supposed to be

pressed with the thumb and pinkie finger, but I could barely reach them when my middle fingers were resting comfortably on the ball. The larger middle button, located between the ball and the wrist pad, was even harder to press without lifting my fingers from the trackball or bending my thumb awkwardly. (To be fair, it is possible that this arrangement might not be such a problem for people whose hands are shaped differently from mine, so your mileage may vary. Still, I wish the two side buttons were a bit longer.)

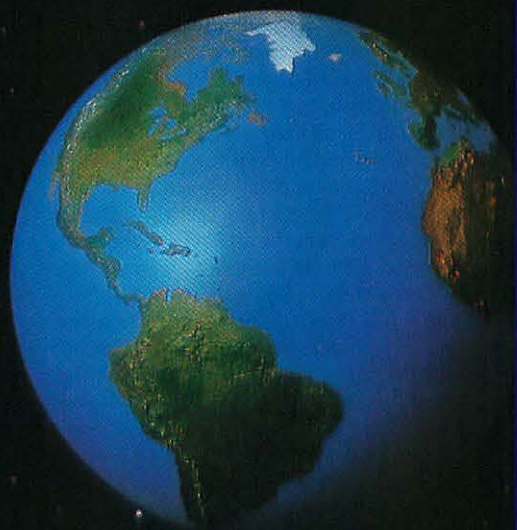
Out of the box, the Mouse-Trak is set up so that the left button clicks, the middle button double-clicks, and the right button click-locks for dragging. Although you can

rearrange these functions (to accommodate left-handed users, for example), you have to manipulate tiny DIP switches on the bottom of the case to make changes. I would prefer to reprogram the buttons with software, as with the Kensington Microware Turbo Mouse.

The Mouse-Trak's lack of software shows up in other ways, too. For instance, although a tiny button next to the wrist rest lets you turn off ballistic cursor response, so the cursor travels at the same speed no matter how fast you move the ball, the Mouse-Trak doesn't give you as much control over cursor motion as Kensington's custom-acceleration software does. Also, you can't use the trackball buttons to send text strings the way you can with the Turbo Mouse.

The Last Word The Mouse-Trak comes out ahead of the Turbo Mouse in a few areas, especially the built-in wrist rest and ball position. However, I still prefer the buttons on the Turbo Mouse, and Kensington's software provides several useful functions missing from the Mouse-Trak. But if lack of software isn't important and the button placement works for you, then the Mouse-Trak is definitely worth considering.—FRANKLIN TESSLER





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GrabNet 1.0

Internet Utility

PROS: Simple, effective system for capturing information from the Internet.

CONS: Requires Netscape Navigator 1.1 for full feature set. **COMPANY:** ForeFront Group (713/961-1101). **LIST PRICE:** \$19.95.



FOREFRONT GROUP'S MAIN INTEREST lies in client-server software, especially applications for online real-time conferencing over the Internet. In the course of developing such software for World Wide Web sites, ForeFront developed a variety of software "parts," some of which the company is now spinning off as separate products. GrabNet 1.0, an inexpensive utility with some very nice features, is one such piece. Think of it as information-capture software for the Internet.

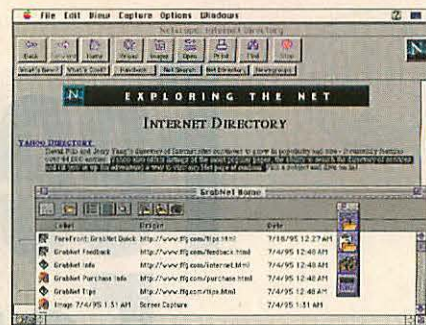
Here's the big feature, right up front: used in conjunction with Netscape Navigator 1.1, GrabNet can capture a Web page—with its title—and attach its URL (Uniform Resource Locator) to the page text. I'm working on two Internet-related books, so this product is the nicest thing anyone has

done for me in years. Whether you use the Web for serious research or serious surfing, GrabNet is a godsend. (By the way, in an emergency—say you're frantically gluing together a history assignment at the last minute on a Sunday night—you can download a ten-day trial version from ForeFront's Web site.)

GrabNet's two other key information-handling features are a tool for capturing images and a tool for highlighting text in Web pages for subsequent copying and pasting. Backing these up are a simple folder-management system for files of Web information and the ability to capture URL information (address plus title) to text files. You can copy current URLs into a text file in a named folder rather than to a hot list, drag URLs to a text file from a Netscape history list, paste URLs from a Clipboard file, or enter them in your own pop-up dialog box. GrabNet lets you attach comments and Web images to a URL's GrabNet file to remind you why you found that site interesting. Highlight a URL in GrabNet and select File Open, and your browser (assuming it's open) will head for that site.

GrabNet's small but powerful repertoire of tricks takes only ten minutes or so to master, but if you forget how to do tasks there's comprehensive Apple Guide help.

The highest level of automation in GrabNet operations currently calls for



Snappy GrabNet's camera tool can capture whole Web pages or selected images from pages, and the Clipboard-to-folder tool lets you stash them anywhere in a hierarchy of folders (both tools are in the tool bar on the lower right).

Netscape 1.1. Other browsers require two or three steps to do the same things, but if you are willing to do some workarounds (keeping BBEdit open to collect Clipboard pieces, for example) you can use GrabNet successfully with Web browsers used on America Online and eWorld. That means that the non-SLIP-equipped masses can at last do sophisticated information processing on the Web. Not bad for 20 bucks!

The Last Word Someday the leading browsers will probably get around to pirating its features, but for now GrabNet is a unique information tool for work on the Web.—CHARLES SEITER

Script Debugger 1.0

Script Development Software

PROS: Nice interface; application is scriptable.

CONS: Debugging facility is missing some features. **COMPANY:** Late Night Software (604/929-5578). **LIST PRICE:** \$129.



APPLESCRIPT, IN ITS ORIGINAL incarnation from Apple, was a powerful concept combined with a curiously inadequate developers' tool kit. This implicit challenge (and market opportunity) has called forth a few more-sophisticated third-party script packages: ScriptWizard from Heizer Software (see *Reviews*, *Macworld*, January 1995), Main Event's Scripter, and now Late Night's misleadingly named Script Debugger. This is not just a debugger—it's a complete script-development environment with a thoughtfully designed interface. The other reason the name is misleading is that debugging is not exactly Script Debugger's strong point.

Script Debugger provides lots of amenities that AppleScript 1.1 doesn't. You can set break points in scripts, you can

single-step through scripts, and you can assemble composite scripts from stock components quickly with drag-and-drop editing. Script Debugger's Dictionary window is an improvement on Apple's Dictionary window and is reminiscent of the popular browser for Think-class libraries. It's PowerPC native (even though AppleScript isn't yet, so scripts don't run faster on Power Macs).

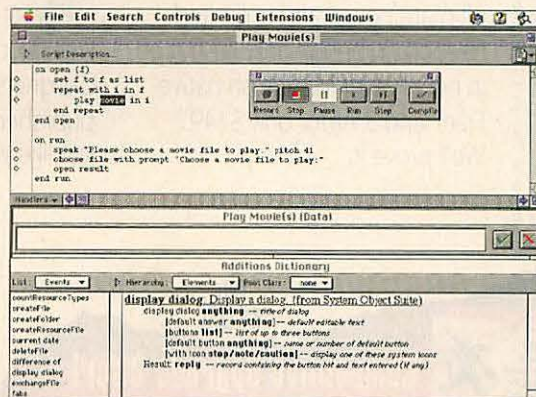
Script Debugger also offers nearly 80 new scripting commands, as well as an Extensions menu for storing frequently used extensions to the scripting command language. The documentation is first-rate, the examples are actually useful, and there's even a card to help you remember the keyboard shortcuts for editing.

In other words, Script Debugger is a vast improvement over AppleScript 1.1. Since Script Debugger is itself scriptable (and attachable), you can use it for all sorts of interesting computer-science experiments in which scripts modify themselves (though quite slowly).

The problem is that Script

Debugger isn't competing against AppleScript, it's competing against Scripter. Scripter's debugging facility keeps correct track of variable local values inside loops and handlers, while Script Debugger is generally only reliable for tracking global variables. (Late Night claims this is a built-in limitation imposed by AppleScript itself.)

The Last Word There's no doubt that Script Debugger is a good product that offers a much more productive scripting environment than stock AppleScript does. Debugger's lightweight debugging capabilities, however, make Scripter a better choice for complex projects.—CHARLES SEITER



Click Away Script Debugger's interface includes a convenient little VCR-style panel for running or stepping through scripts.

FreeHand 4.0, 1994 MacUser Eddy Award



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InfoGenie 1.0.5

Data Manager

PROS: Supports both free-form and field-based files; envelope and label templates are easy to customize. **CONS:** Only one field type; no data entry shortcuts; limited list view. **COMPANY:** Casady & Greene (408/484-9228). **LIST PRICE:** \$79.95.



UNTIL NOW, MACINTOSH users looking for a place to store contact information had to choose between free-form programs like Prairie Group's InTouch and field-based software like Now Contact. InfoGenie, a new application from Casady & Greene, tries to solve the conundrum by supporting both formats.

As a free-form database, InfoGenie picks up where Casady & Greene's venerable QuickDex left off. (Unlike its predecessor, however, InfoGenie doesn't require a separate program for printing.) Most of InfoGenie's uncluttered window is devoted to a single scrolling field that accepts up to 32K of text. Buttons at the top let you page through the database, print, dial phone

numbers, enter time and date, add and delete records, view built-in help, and access the three InfoGenie files you use most often. A find function lets you search for records containing specified text, and InfoGenie supports global search and replace.

In addition to the basic text view, you can display your data using predefined label and envelope templates. When you switch views, InfoGenie automatically adjusts the text in all records to fit the selected template. While this approach works well for small amounts of data, InfoGenie can take several minutes to reformat large files; fortunately, you can cancel the operation and return to the basic view at any time.

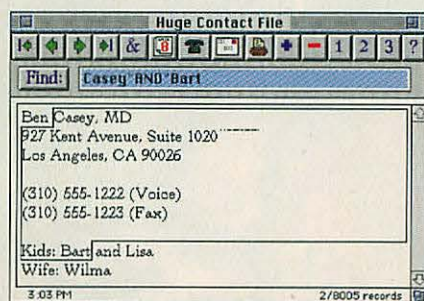
For those who prefer the discipline of fields, InfoGenie provides the bare essentials. InfoGenie supports only text fields, so shortcuts like automatic phone-number formatting and autocompletion are absent. InfoGenie's spartan list view displays the field headers and data using the same font and style, and color is limited to horizontal and vertical grid lines. You cannot edit data in the list view, and there is no easy way to mark records to view a selected group.

You can dial telephone numbers via a modem or using Sophisticated Circuits' Desktop Dialer. InfoGenie automatically recognizes 7-digit numbers in various standard formats and even handles extensions. You can also set dialing preferences, includ-

ing area codes and prefixes, credit card numbers, and default modem settings.

InfoGenie is compatible with System 7.5, runs native on Power Macs, and requires just 750K of memory. The thorough user guide includes a special section just for novices. If you run into a problem, tech support is available via online services and by phone, but it's a toll call to California.

The Last Word If you need a contact manager with fields, a dedicated program like Now Up-to-Date will serve you better than InfoGenie. Free-form proponents will have difficulty choosing between InfoGenie and InTouch: InfoGenie is simpler to use, but InTouch has a richer feature set and costs less. With improvements to its field-based half, InfoGenie could be a strong contender.—FRANKLIN TESSLER



Fast Find InfoGenie lets you search for records that contain two or more noncontiguous text strings.

Black Box 2.0

Photoshop-Compatible Image Filters

PROS: Unique effects; new preview window; savable filter settings; compatible with Photoshop 3.0 layers. **CONS:** Slow on 680X0 Macs; several filters deselect current selection after they're applied. **COMPANY:** Alien Skin Software (919/832-4124). **LIST PRICE:** \$119.



VERSION 2.0 OF ALIEN SKIN'S Black Box offers four all-new special effects, a preview window, and user-defined settings. Applying motion blurs and swirls, or bevel, cutout, and glass effects to selections—including those within Photoshop layers—has never been easier.

Black Box's spiffed-up 3-D interface includes a panning preview window and a list of preconfigured settings (with descriptive names like Scooped Out, Ugly Ridges, and Very Smooth). You can also create your own settings and save them.

You can apply all your filters to Photoshop layers, and you can merge their effects at various levels of transparency by using Black Box's opacity slider. Although you can

undo all filters, several deselect the current selection after they've been applied; if you haven't saved the selection, you've lost it.

Version 2.0 has ten filters. Four create an adjustable-width bevel that appears to be sunk into the surface of an image (Inner Bevel), raised above it (Outer Bevel), roughly carved into a selection (Carve), or coated with a shiny raised layer (Glass).

The new Cutout filter removes the selected area and turns it into a feathered shadow that can be seen under the area that was removed, much as Drop Shadow adds a soft silhouette behind a selection. Both allow you to specify opacity, shadow color, amount of blur, and x and y offsets.

Motion Trail smears the selection in one direction, as if the object were photographed while moving rapidly. The blur direction is selectable from a rotating wheel, and sliders control the length and opacity of the smear effect. HSB Noise adds random texture to RGB images using subtle variations of hue, saturation, and brightness.

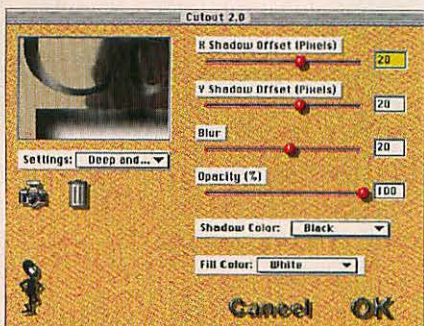
Swirl remains the coolest filter in Black Box, creating unique and outrageous effects, but it shipped with version 1.0. Version 2.0's new filters—Inner Bevel, Carve, Cutout, and Motion Trail—are useful, but not as much fun.

While some of Black Box's effects—such as Drop Shadow and Glow (which adds a neon backlight to your selection)—can be

achieved using Photoshop commands, Black Box's filters allow you to experiment with two or three variations in about the time it would take to select, feather, and add blur to a manually created drop shadow.

Though accelerated for Power Macintoshes, Black Box remains slow on 680X0 Macs. On a Quadra 650 with 24MB of RAM (16MB of it set aside for Photoshop), it took 10 to 15 seconds to preview most effects, and it can take up to a minute to apply them to moderate-size selections.

The Last Word While many of Black Box's effects may seem to be just variations on a theme, they're all useful and worth the modest price.—DAVID D. BUSCH



The Shadow Knows Cutout creates a drop shadow behind a selection cut out of an image, producing a 3-D effect. You can control the x and y offsets, opacity, shadow and fill colors, and blur.

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Visual Arranger 1.0

MIDI Song-Building Software

PROS: Clever idea; wide variety of musical styles. **CONS:** Convoluted interface; limited expression control; unclear target audience; requires General MIDI synthesizer. **COMPANY:** Yamaha Corporation of America (714/522-9240). **LIST PRICE:** \$59.95.



UNTIL RECENTLY, EVERY SYNTHESIZER manufacturer designed the instruments with the sounds (piano, violin, and so on) in different numerical slots. For example, the piano might be sound number 8 on my keyboard, and number 23 on yours. As a result, your MIDI synthesizer could never play back my songs with the same instrumentation.

Finally, synthesizer makers settled on a common arrangement of sounds, known as *General MIDI*: piano is always 1, drums are always 10, and so on. Any music written on one General MIDI synthesizer plays back the same way on any other. The stage was set for programs like Visual Arranger.

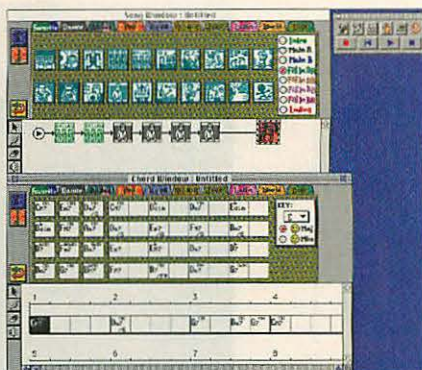
Each of this program's 160 cartoony, stereotypical icons represents a musical

style: a man with dreadlocks means reggae, a man with an Afro designates a rock dance style, and so on. You click on an icon to hear a fully orchestrated, great-sounding snippet in the indicated style. By dragging these icons around, you can assemble a song—or the accompaniment of a song, anyway. To add a melody, you can press your Mac's letter keys, triggering a brief, canned, melodic lick each time, or you can actually record a melody of your own, playing it either on your synthesizer or using the number keys of your Mac.

Unfortunately, beyond the fast-fading novelty of clicking on icons to hear snippets of canned pop music, Visual Arranger's wordless interface hurts more than it helps.

For one thing, as Microsoft programs have demonstrated, icons simply aren't as communicative as words: The word *ragtime* is far more descriptive than a picture of two hands on a piano. Further problems arise when you attempt to use the chord-editing window. To build a simple sequence, you have to use three different unfamiliar interface elements.

All of this should hint at Visual Arranger's biggest failing: its lack of audience focus. The goofy icons and musical building blocks imply that it's designed for



Musical Icons The main window (above) is where you arrange your icon-based musical chunks. The chord window (below) shows your paltry palette of preselected chords.

children, yet the chord-creation tool requires serious musical knowledge. And musicians will scoff at the program's amazingly weak expression controls. You have little control over dynamics (soft versus loud) or tempo changes.

The Last Word Reinventing the wheel isn't always a bad idea—it brought us the Mac, for one thing. But Yamaha has chosen to replace, with icons, two of the most expressive and precise languages in the world: music notation and English. Both musicians and nonmusicians are likely to be baffled.—DAVID POGUE

MediaFactory 1.0

QuickTime Movie Editor

PROS: Inexpensive. **CONS:** Awkward interface; poor documentation. **COMPANY:** Nuts Technologies (408/980-7800). **LIST PRICE:** \$199.



ADOBE PREMIERE IS MY FIRST choice for a QuickTime movie-editing package, but at \$795 it's expensive for casual moviemakers. What the world needs is a good, low-cost QuickTime movie editor. Unfortunately, MediaFactory isn't it. This \$199 program is hampered by poor interface design and bad documentation.

MediaFactory uses the project-and-timeline metaphor common in video-editing packages: you import captured movie clips and sounds into a window and then drag them into video and audio tracks on the timeline. Most programs label their tracks A, B, C, and so on—a standard convention—but MediaFactory *numbers* its tracks, beginning with zero, at that.

MediaFactory lets you create simple cuts from one movie clip to the next by butting the clips against each other in a single track. You can change a clip's in- and

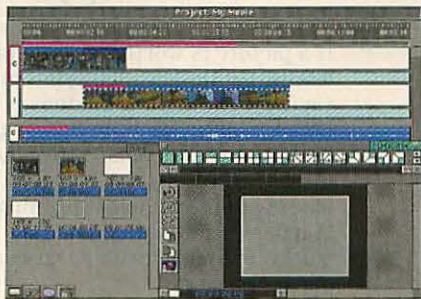
out-points by dragging them on the timeline. You can also create transitions between tracks by placing the clips in adjacent tracks and then adding a transition. MediaFactory has 26 transitions, including wipes, barn doors, and band slides, but incredibly doesn't have the most common one used in TV and video: the cross-dissolve, where one clip fades out while another fades in. To create a dissolve, you must manually fade each of the two clips in and out. MediaFactory provides a strong selection of 20 video filters—Motion Blur, Twirl, Sharpen, Emboss, Mosaic, and more—but I'd trade a few of them for a cross-dissolve transition.

MediaFactory's audio features are inadequate. You can specify the overall volume

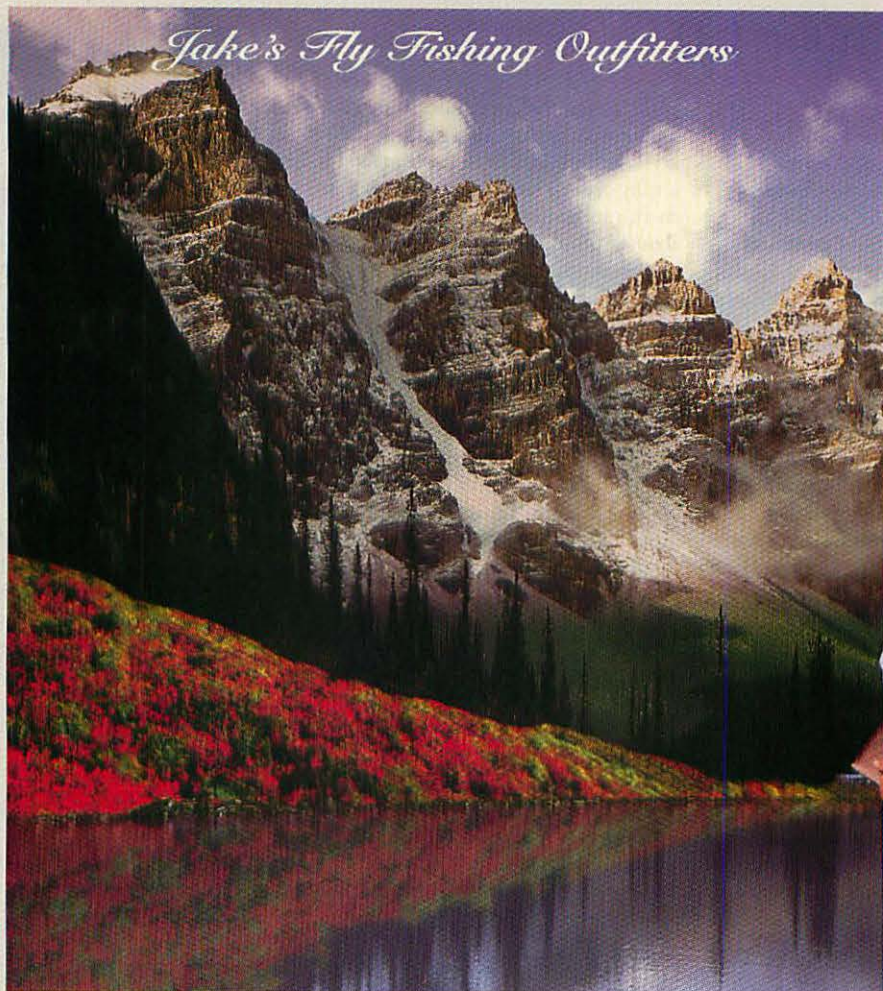
of an audio clip and fade clips in and out, but you can't reduce its volume to a constant level. Thus, a movie can't begin with a full-volume music passage whose volume lowers for a voice-over—another extremely common production technique.

Nuts Technologies is based in Hong Kong, and MediaFactory has an awkward-translation feeling: its splash screen bears the tag line "A QuickTime movie editing software." But the awkwardness goes beyond that. Tool palette icons are arcane. Some windows have zoom boxes, some don't. And in the timeline, double-clicking on a movie clip displays a dialog box, while double-clicking on an audio clip plays the clip. The manual is no help, either. Besides reading like a bad translation, it's poorly organized—a menu-reference chapter appears before the tutorial chapters, for example. One tutorial chapter instructs you to import an audio file, but the one it provides isn't a sound file. The index is scant. My support call was greeted by a voice-mail system asking me to leave a message. A rep called back within a few hours, but confessed to a lack of familiarity with the product.

The Last Word If you need an entry-level QuickTime movie-editing program, buy Radius's QuikFlix. It's an infinitely better program, and costs \$50 less. MediaFactory just isn't ready for prime time.—JIM HEID



A Hard Day at the Factory Just a few of MediaFactory's nonstandard windows (clockwise from lower left): the Clips window, the Project window, and the cryptically iconed Film Editor window.



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Jake's Fly Fishing Outfitters is the tri-county area's premier fly shop. We offer a vast selection of high-quality equipment, from fly rods to float tubes. Our hand-tied flies are selected from the finest tiers. Charters and lessons are available for any experience level. And a helpful, knowledgeable staff is always ready to assist you.



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S/Link 2.0

Audio-Conversion Utility

PROS: Straightforward interface; supports all major audio file formats. **CONS:** No playback-navigation controls; Windows menu doesn't list open windows; can't convert files in background; manual lacks an index. **COMPANY:** Synclavier (603/448-8887). **LIST PRICE:** \$249.



MULTIMEDIA PRODUCTION isn't all glitz and glamour, you know. Most of the time, it's grunt work that involves translating the formats and converting the structure of hundreds of files, then preparing them for QuickTime editing programs or for authoring packages.

Take audio, for example. In CD-ROM production, it's common to use relatively low sampling rates and bit depths to save space—22kHz, 8-bit audio instead of the 44kHz, 16-bit compact disc standard. Just about any audio or QuickTime production program can perform this conversion, but on only one file at a time.

Synclavier's S/Link is designed for just such chores. S/Link can't record audio, nor

does it have the kinds of waveform-editing features found in programs such as MacroMedia's SoundEdit 16 or Digidesign's Sound Designer II. S/Link's specialty is batch-format conversion. Give it a folder full of files, tell it how to translate them, and then walk away while it does its work.

S/Link can read and write every audio format you'll find in the personal-computer and workstation worlds: SND, AIFF, WAV, VOC, MOD, IFF, OMF—the whole bowl of alphabet soup. The program also supports the Sound Designer I, Sound Designer II, and SoundEdit formats, as well as the QuickTime movie format, and it can read audio tracks from compact discs.

S/Link wraps its translation skills within a straightforward interface. All mounted volumes—hard drives, CDs, and so on—appear in windows similar to the Finder's. If a file has a small speaker icon next to it, it contains audio. You can listen to it by selecting the file and pressing the spacebar; you can't, however, fast-forward or pause.

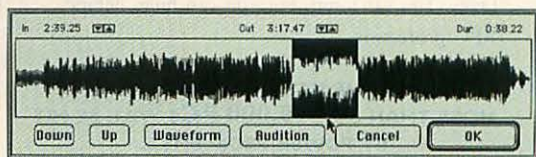
To convert a file—or an entire folder—select it and choose S/Link's Duplicate command. You can specify your desired conversion settings, and you can display a waveform window that lets you select only that portion of the sound that

you want to convert (see "Translating Audio"). Click on the Transfer button, and S/Link does its thing.

S/Link includes both 680X0 and Power Mac versions. The latter delivers on performance: in one test I performed, a conversion that took 149 seconds on a Quadra 840AV took only 34 seconds on a Power Mac 7100/80.

The Last Word I have some quibbles. The program lacks background processing—you can't switch to another program and work while S/Link converts files. Also, its Windows menu should list the name of each open disk or folder—it's easy to lose yourself in a clutter of open windows. And the otherwise informative manual needs an index.

These are minor complaints, however. S/Link does its job well and is a valuable tool for anyone who does a lot of audio file conversion.—JIM HEID



Translating Audio S/Link displays the contents of disks and folders in windows. By clicking the Region button in the format-conversion dialog box (not shown), you can select a portion of the audio to convert, as shown here.

CyberSound FX 1.0

Audio Plug-ins for Premiere

PROS: Supports 8- and 16-bit audio; good preset templates; can save your own templates; clear built-in help. **CONS:** Some effects have limited usefulness; accessing filters is cumbersome. **COMPANY:** InVision Interactive (415/812-7380). **LIST PRICE:** \$129.



POOR AUDIO MAKES VIDEO hard to watch. Uneven dynamics, booming voices, and background noise all distract the viewer from the message being presented. Conversely, well-crafted audio enhances video viewing. But Adobe Premiere doesn't include tools to craft fine audio. CyberSound FX, a collection of 15 Premiere filters, can help your digital audio sound better.

The filters, which work with all programs that support Premiere plug-ins, fall into four categories: tone equalization (both shelf and parametric), ambience (such as reverb and echo), dynamics processing (such as compression and normalization), and special effects (such as flange and chorus). Each

effect includes preset templates, which are easy to customize. To use CyberSound FX with Premiere you simply select an audio track and open Premiere's Filters dialog box. After you have selected a filter, you can preview your selection and compare the track with and without the filter applied. You apply the filter to the audio track by clicking on the OK box. You can even save and name the custom settings to create a new template.

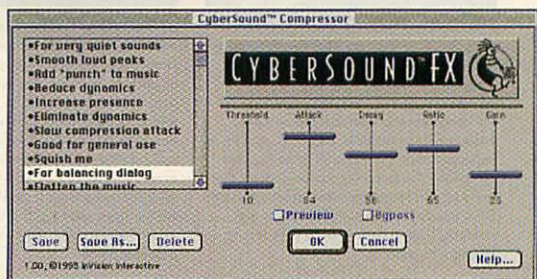
I used CyberSound FX on several different types of audio, including music, location sound, and voice-over tracks. For example, I applied both the Dynamic Filter and the Compressor to dialogue recorded near a busy street, and easily produced a track with less background noise and more-even volume levels.

The special-effects filters (such as Flange, Phaser, and Pitch Shift), while of good quality, don't make your audio easier to hear. Rather, they manipulate and distort sound in a manner similar to that of a guitarist's effects pedals. You can apply the special effects to individual instrument tracks in

a compatible audio-editing program such as OSC's Deck II.

Unfortunately, you cannot select or adjust CyberSound FX filters within Premiere's Construction Window. You can access CyberSound's filters only in Premiere's Filters dialog box, so you can't preview audio with the accompanying video. This also means that setting up complex combinations of filters and applying filters to different segments of an audio track take extra steps and are more difficult.

The Last Word CyberSound FX's 15 Adobe Premiere plug-ins can make any audio more polished. They've earned a place in my multimedia tool kit. However, users might apply the filters more often and more creatively if the filters were easier to access.—JIM FEELEY



Squeeze Me The compression filter's templates on the left provide good starting points for adjusting the sliders on the right.

No matter how fast can't outrun a power

New Back-UPS: reliable power for your Mac

Just don't have the time for power problems on your Mac? Don't worry. They'll make time for you. It's not if a power problem will occur, but when. Due to household appliances, poor wiring, bad weather or even other office equipment, power problems are as inevitable as death and taxes. You can't run, but you can hide, behind APC protection.

**IN THE NEXT THREE MONTHS,
MORE THAN 30,000,000 PCs WILL BE HIT
BY POWER PROBLEMS...**

A study in a recent *PCWeek* showed that the largest single cause of data loss is bad power, accounting for almost as much data loss as all other causes combined. Every Mac plugged into an outlet is vulnerable. In fact, you have better odds of winning the lottery than escaping power problems. One study found a typical computer is hit 100 times a month, causing keyboard lockups, drive damage, or worse.

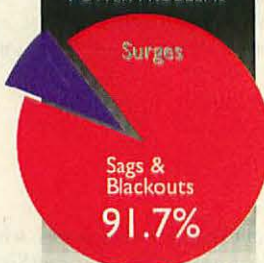
Simply put, if power problems are the least of your troubles, you've got one chance to keep it that way. You insure your car and home with the best policy you can afford. It just doesn't make sense to leave your Mac (which is at far greater risk) vulnerable to loss or damage.

CAUSES OF COMPUTER DATA LOSS



Source: Contingency Planning

FREQUENCY OF POWER PROBLEMS



Source: Bell Laboratories

Power problems are the leading cause of computer data loss, while the most frequent type of power problems are undervoltages and blackouts, which surge suppressors alone are powerless to protect against.

WHY A \$119 APC UPS COSTS LESS THAN A \$9.99 "SURGE PROTECTOR"...

Contrary to most people's belief, a Mac alone has more protection built into it than a low-end "surge suppressor," which is usually nothing more than a well-packaged extension cord. In other words, going without protection is as good as under-spending on one of the most important computer decisions you'll make.

And since sags and blackouts represent more than 90% of power problems likely to hit your Mac, even quality, high-performance surge suppressors are literally powerless to protect your Mac from data loss.

That's why you need instantaneous battery backup power from an APC Uninterruptible Power Supply to prevent keyboard lockups, data loss, and crashes. With an APC UPS, you get six times the protection of a high-end surge protector for little more than twice the price. And \$119 is much less expensive than false peace of mind.

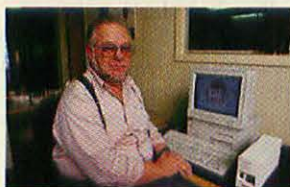
Add APC's PowerChute* and you also get the security of graceful, unattended safe shutdown. Whether your running System 7.5 on your PowerMac, Quadra, IICl or on any other Mac system, PowerChute will shutdown your system and your applications in the event of an extended power failure.

APC UPSs carry up to a

**\$25,000 lifetime
guarantee
against surge
damage to your
properly**



More than 3,000,000 satisfied customers count on APC reliability



Modern Press President Stephen Hopkins explains, "I protect my Mac Performa with a Back-UPS 400 and the unit works great. The Mac handles all bookkeeping, administrative and estimating functions for the company. It is a critical piece of my business. Unfortunately, we are located in an industrial park... a nice way of saying that our power fluctuates a great deal. After five years of reliable performance from my Back-UPS, power problems are no longer my concern. I can focus my energy on my business instead."



At Cellophane Square, Seattle's best known independent and alternative rock record store, Steve Marcus, Product Buyer, counts on APC to keep his Mac II SI and POS terminals running reliably. "The building where we started out was ancient and full of power problems. I lost lots of purchasing and product related information... until we invested in APC. I chose APC because they offer the most reliable product. I haven't been proven wrong yet. Problems continued in the building, but they were no longer a problem for us."



"We have over 30 APC units on our Macs," says Tim Girvin, principal of Tim Girvin Design, Seattle, WA. "Why do we protect every computer in the firm with an APC? As design consultants working on projects throughout the United States and Asia, 100% productivity is critical to project management. We cannot afford lost files due to power outages because of the complexity of many of the design programs we manage. Lost projects due to unprotected files is simply irresponsible. With APC in place, power problems are not even an issue, we are protected."

your Mac is, it problem

starting at \$119

connected equipment, and can suit any application, from servers and PCs, to fax and satellite systems.

PROTECT YOURSELF OR KICK YOURSELF...

It's been said that there are two types of computer users: those who have lost data, and those who are about to. Prevent the single largest cause of computer problems and join a fast-growing third category: those who protect their PCs with the most reliable protection they can buy: APC UPSs. So ask for APC at your favorite reseller. Starting at \$119, an APC UPS is serious protection no Mac user should be without.

MacWEEK "Ultimately, it's more a question of when - and not if - you should buy a UPS... UPS power protection has never been cheaper or more convenient"

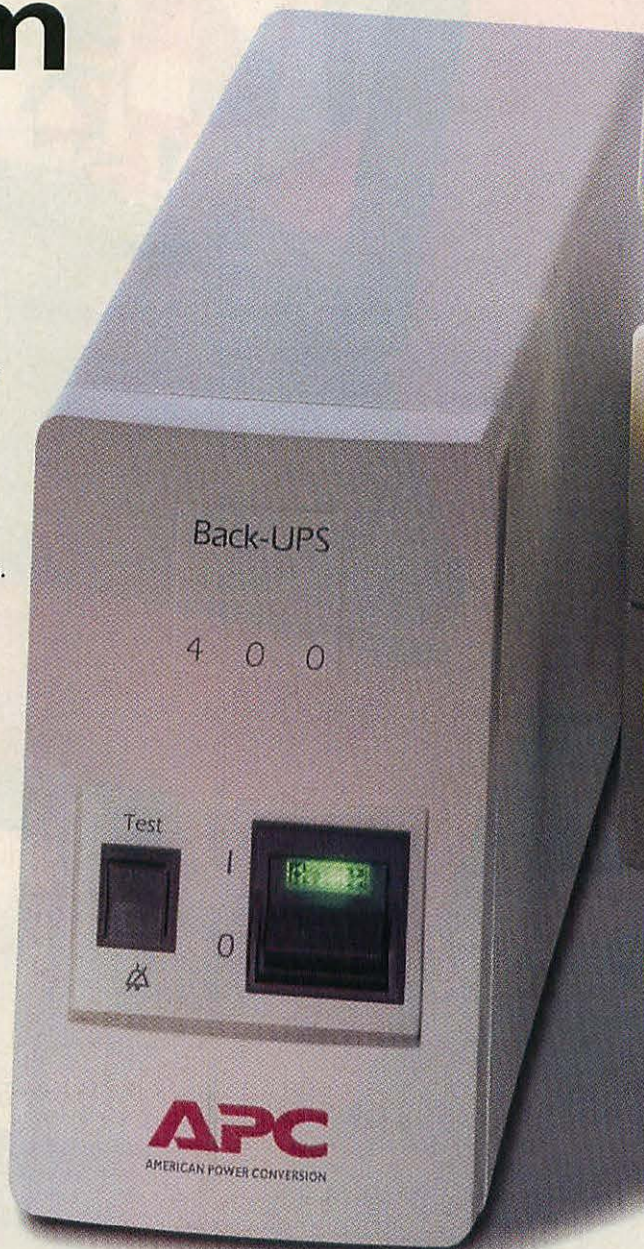
MacUser "If you have a server and don't have a UPS, you're playing with fire."



Back-UPS FEATURES

- ▶ Unmatched surge/lightning protection for maximum hardware safety
- ▶ Site diagnostics automatically spot missing ground and reversed polarity
- ▶ LAN signaling allows simple shutdown with interface kits (400 and above)
- ▶ User replaceable, hot swappable batteries insure uptime safe disposal
- ▶ \$25,000 lifetime Equipment Protection
- ▶ 10 minute runtime with specified applications. For longer runtimes choose next largest unit.

Model	Application	Sugg. List
200	Desktop systems	\$119
280	Desktop systems	\$139
400	MultiMedia	\$199
450	Quadra	\$254
600	PowerMacs	\$359
900	Longer runtime applications	\$529
1250	Multiple systems	\$689



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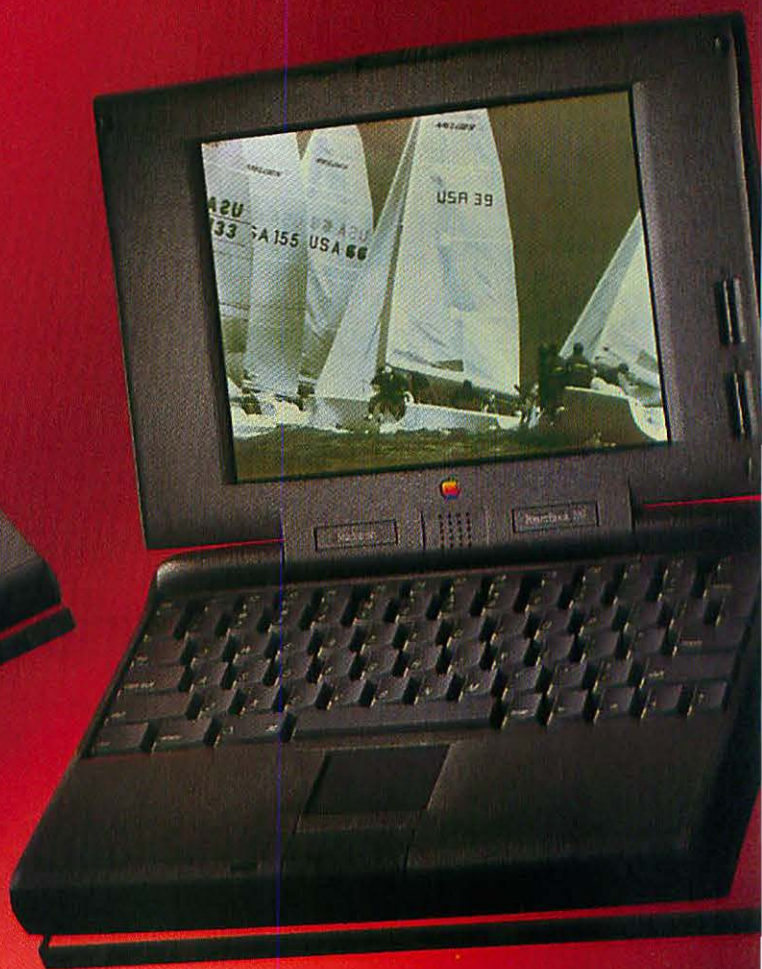
APC products have won more awards for reliability than all other UPS vendors combined



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AMERICAN POWER CONVERSION

Call 800-800-4APC

PowerBook Riches Highly expandable, the new all-in-one PowerBook 5300 series (top) and 190 series (bottom right) let you add all sorts of options in the expansion bay, PC Card slots, and Processor Direct Slot, plus take advantage of wireless networking and use a larger display. The new 2300-series subnotebooks deliver an easier-to-use trackpad, plus lots of RAM and big hard drives. All the new PowerBooks except the 190 series use the PowerPC 603e CPU, but you shouldn't expect more than a modest speedup compared with the 68040-based PowerBook 500 series.



POWERPC

B Y G A L E N G R U M A N

PORTABLES

THE NEWEST MAC NOTEBOOKS
OFFER A WEALTH OF FEATURES
AND EXPANSION OPTIONS

APPLE'S POWERBOOKS HAVE always led the way in design. They've made PC notebook users envy their Mac colleagues' sleek systems and given PC notebook makers something to copy. And the PowerBooks' functional designs have mostly stressed the Mac's advantages—for example, when it comes to connectivity, few PC notebooks even come close. But the fact remains that Apple's PowerBooks have rarely been cutting-edge in either horsepower or capabilities compared with the leading PC notebooks. The new PowerBooks fix the second part of that problem, offering users a tremendous range of capabilities.

The new PowerBooks also offer the first PowerPC CPUs in a notebook, and you'll see a performance boost relative to the 680X0 PowerBooks. The improvement is welcome, but don't be fooled by the high megahertz ratings. The PowerPC 603e CPU these notebooks use is slower, megahertz for megahertz, than either the PowerPC 601 or 604 used in desktop models, so don't expect 100MHz Power Mac 7500-like speeds from a new 100MHz PowerBook 5300—Macworld Lab tests show that you get the rough equivalent of just a 66MHz Power Mac 6100.

The speed of a 6100/66 is a lot of power in

a compact computer, but most PowerBook users will care more about having notebooks that are the most flexible Macs possible; that work anywhere; and that have the tools these users need at the office, on the road, and at home. They'll also love the long-life battery technology that Apple now offers: Macworld Lab tests show a threefold improvement in battery life over the PowerBook 500 series, up from less than 1.5 hours to nearly 4 hours.

Impressive Options

Apple's newest PowerBooks push product innovation beyond design, offering capabilities that only the most adventurous PC notebooks have offered until now. And Apple is including many of these technologies across its new line, not just in a few high-end models. In a nutshell, here is the range of features you can look forward to in the 190- and 5300-series all-in-one PowerBooks, or the 2300 subnotebook series.

- PowerPC 603e CPUs as fast as 117MHz, which compares in speed roughly to a Power Mac 7100/80's 80MHz 601 CPU.
- Two PC Card (formerly called PCMCIA) slots (to hold two Type II cards, such as those used for modems, or one Type III card, such as that used for hard drives).
- An expansion bay that can hold a floppy drive, a battery, other drives, an AC power adapter, or perhaps other devices.
- Truly user-installable RAM.
- A trackpad that lets you double-click by tapping twice, rather than using a button.
- A 10.4-inch color LCD screen, whose image size is nearly that of a 14-inch monitor's viewable area. Goodbye to scrunched text.
- Stereo sound and 16-bit LCD video display for multimedia presentations.
- Longer-lasting lithium-ion (LiIon) batteries.
- Infrared (IR) transceivers for wireless com-



munication with other notebooks and desktop systems—possibly even PCs.

Such technologies aren't cheap, and the prices of these notebooks reflect that. The good news is that prices for the newest PowerBooks are at least on a par with those of their PC competition, which has not always been true for previous generations. For example, the top-of-the-line PowerBook 5300ce costs about \$6800—expensive, but in line with the roughly equivalent IBM ThinkPad 755CE, Texas Instruments TravelMate 5000, or Toshiba T4900CT.

The newest Mac portables come in three lines, as the table "What the Newest PowerBooks Offer" shows: the 5300 series of all-in-one PowerBooks, the 2300 series of subnotebooks, and the 190 series of low-cost all-in-one PowerBooks. The 5300 is

you'll be able to tailor your PowerBook to changing needs, just as you can with a desktop system. (For more information on add-on products for and features of the new PowerBooks, see "First Add-ons to New PowerPC PowerBooks" in this issue's *News* section and *PowerBook Notes* in this issue.) And while the proliferation of options might confuse users, Apple has done a great job in making this complex set of choices approachable.

When you first see a 5300, you'll notice its new color—black. That might at first hide the fact that the 5300 is not quite as sleek as the 500 series: the case is squarer. The reason is simple: Apple needed the extra room so it could add exchangeable components and to accommodate the larger screen.

PC Card Slots After adjusting to the new color



The Expandable PowerBook The sides and back of the new 5300 and 190 PowerBooks (left) are crammed with expansion options. In addition to the expansion bay and security connector (not visible from this view), there are (from left to right) an infrared port, a Processor Direct Slot (which usually holds a video card), two audio ports (just one on the 190), a SCSI port, a serial port, an ADB port, and (on the side) two PC Card slots (shown with some cards). The infrared port and video card are optional on the 190. With an infrared pod such as Farallon Computing's AirDock attached to your desktop Mac (right), you can exchange files with a new PowerBook just by pointing the PowerBook at the pod.

where most of the innovations are; the 2300 subnotebooks are essentially the previous 200-series Duos with a PowerPC CPU and a trackpad (rather than a trackball); while the 190 is a 68LC040-based variant of the 5300.

5300: Desktop Mac to Go

The 5300 series is the top of the line, packed with all the new features and sporting a choice of a 100MHz or 117MHz 603e CPU. You can have as much as 64MB of RAM in these models—more than you'll probably ever need. You can spend as little as about \$2300 for the basic 5300 or more than \$7000 for the fully loaded 5300ce. The 5300 series replaces the 500 series PowerBooks, which were discontinued when the 5300's began shipping on September 11.

What is most striking about the 5300 series is its range of options, as shown in the photo "The Expandable PowerBook." The expansion bay, Processor Direct Slot (PDS), and PC Card slots mean

and shape, you may notice the two slots on the left side: these accept two Type II PC Card cards or one Type III card. Although the slots are PC-standard, you won't see the huge bays that some PC notebooks have for their slots. Instead, the PowerBooks have bomb-bay doors that close when no card is inserted.

Given all of Apple's built-in ports, why would you need PC Card expansion on a PowerBook? One reason is to add a modem or network connection—these are gone from the 5300.

Like all notebooks with PC Card slots, the 5300 has an eject button for each slot. You can drag a storage card's icon to the Trash to eject the card, but you have to use the button for networking and modem cards. You can eject any card whether the PowerBook is shut down or active.

Longer-Lasting Battery The other side of a 5300-series PowerBook is more complex. Toward the front is a battery compartment, which holds the new lithium-ion battery. A lithium-ion battery's charge lasts about half again as long as a nickel-metal-hydride (NiMH) battery's charge, Apple says. Macworld Lab results show that the reality is even better than the claim. In our tests, the 5300's battery ran more than three times as long as a 540's.

The disadvantage to lithium-ion technology is that it takes more energy consistently applied to charge it, so you can't use a 500-series NiMH battery charger. But you can use a NiMH battery in the 5300, and even recharge it there.

Expansion Bay Further back on the right-hand side is the floppy drive, which is set into the 5300's

expansion bay. You can pop out the floppy drive and put in another device—even when the PowerBook is running—just as if you were ejecting a floppy or removable-media cartridge. (The release latch is on the bottom of the PowerBook's case; make sure you release the latch before pulling out the device, so you don't rip it from its moorings.) Don't pop out any storage device in the expansion bay while the PowerBook is asleep. Otherwise, Apple says, you could lose data.

Remember that all add-on cards and devices will use some of the PowerBook's battery power.

The PowerBooks will also come with a case to store your PC Cards. That's nice, but even nicer is the fact that this case fits in the expansion bay, once you remove the floppy drive or whatever device was in the bay.

Last year's PowerBook 500 series introduced expansion bays to Mac notebooks, but they were hardly successful. The only real options for them



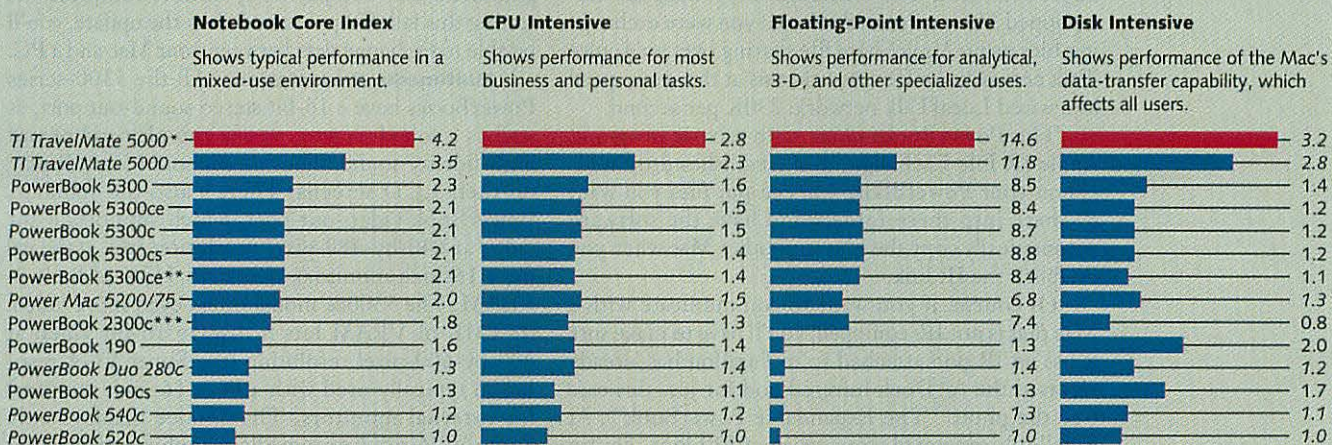
New PowerBooks Offer Twice the Speed . . .

With the punch of a PowerPC, the new PowerBooks offer twice the overall performance of their 680X0-based predecessors. While that's a significant improvement, it's less than you might expect given the greater performance leap between the 040-based Quadras and the first Power Macs. Still, the newest PowerBooks offer performance that is equivalent to a Power Mac 6100/60 or Performa 5200/75. Compared with a 75MHz Pentium-based notebook, the new PowerBooks fall short, but that is partly due to Microsoft's typically slow-performing ports of Windows software to the Macintosh and, for disk-related functions,

to the 680X0 emulation that remains in System 7.5 on a Power Mac.

Notice that the gray-scale 5300 performs better than its color variants (the 5300ce and 5300c); that's because gray-scale LCDs and video circuitry are snappier. Scrolling on a 5300ce may appear slower than on other notebooks because its pixel resolution is 800 by 600, so there is more data to scroll than on the 640-by-480 resolution found on most other notebooks. Macworld Lab resized the scroll window to 640 by 480 to factor that difference out, although we show performance at the full screen size as well.

■ = Best result in test. Longer bars are better. Products are listed in overall order of performance, from best to worst, in terms of times as fast as a 520c (520c = 1.0). Italics denote other Macs and a representative PC notebook used for reference.



*Running Windows 95. **Window size of 800-by-600-pixel resolution (full screen for the 5300ce). ***Only supplied with 12MB of RAM; virtual memory was turned on.

... And Triple the Battery Life

The new full-size PowerBooks have three times the battery life of the old 500 series, but the new 2300c just about ties with its 280c predecessor. That's because the 5300 series and the 190 were substantially redesigned, while the 2300 is essentially the earlier Duo design with a PowerPC CPU added. Again, though, the PC notebook does significantly better than even the best new PowerBook. In this case, the TravelMate comes with two lithium-ion (Lilon) batteries compared with the PowerBook's one. These results also show the benefit of Lilon over nickel-metal-hydride (NIMH): the 190 with a Lilon battery ran about 49 minutes longer than the same 190 with a NIMH battery.

Times in hours:minutes:seconds

TI TravelMate 5000	4:23:59
PowerBook 5300	3:57:50
PowerBook 5300c	3:56:29
PowerBook 5300cs	3:48:43
PowerBook 190 (Lilon)	3:37:00
PowerBook 190cs	3:22:22
PowerBook 5300ce	3:12:29
PowerBook 190 (NIMH)	2:47:50
PowerBook 2300c	1:58:30
PowerBook Duo 280c	1:56:38
PowerBook 520c	1:18:56
PowerBook 540c	1:16:32

BEHIND OUR TESTS

Macworld Lab tested performance by measuring the time it took to perform several real-world tasks in Adobe Persuasion 3.0, Claris FileMaker 2.1v3, ClarisWorks 3.0, Microsoft Excel 5.0, and Microsoft Word 6.0.1. (We used native Power Mac versions in all PowerPC-based systems for all software but FileMaker, which has no native version.) These tasks measure what business users will experience in typical notebook usage. We grouped the tasks, including scrolling, find and replace, and sorting, to show the effects on raw computation (CPU Intensive); scientific and analytic computation, including Excel recalcs (Floating-Point Intensive); and hard-disk operations, including Excel, Word, and ClarisWorks opens, and a FileMaker sort (Disk Intensive). The Notebook Core Index averages these three sets of tasks, giving 60 percent weight to the CPU Inten-

sive score, 10 percent weight to the Floating-Point Intensive score, and 30 percent weight to the Disk Intensive score. The amount of RAM in the PowerBooks varied from 12MB to 32MB, based on what Apple could supply, but the amount of memory beyond 16MB had a negligible effect in our tests. The PC notebook had only 8MB of RAM (as supplied by the company), but even so it performed well.

We tested battery life by exercising the notebook's disk and video systems while performing calculations. We set backlighting to be just bright enough to read the screen under normal viewing conditions. This aggressive use shows what battery usage you can expect under demanding conditions.—Macworld Lab testing supervised by Mark Hurlow and Danny Lee

What the Newest PowerBooks Offer

Model	Company's Estimated Price	CPU	RAM (included/maximum)	Hard Drive Capacity	LCD Panel	Video Output	Sound
5300ce	\$6800	117MHz 603e	32MB/64MB	1.1GB	10.4-inch active matrix color	8-bit	16-bit in/out
5300c	\$3900	100MHz 603e	8MB/64MB	500MB	10.4-inch active matrix color	8-bit	16-bit in/out
	\$4700	117MHz 603e	16MB/64MB	750MB	10.4-inch active matrix color	8-bit	16-bit in/out
5300cs	\$2900	100MHz 603e	8MB/64MB	500MB	10.4-inch passive matrix color	8-bit	16-bit in/out
	\$3700	100MHz 603e	16MB/64MB	750MB	10.4-inch passive matrix color	8-bit	16-bit in/out
5300	\$2300	100MHz 603e	8MB/64MB	500MB	9.5-inch passive matrix gray	8-bit	16-bit in/out
Duo 2300c	\$4700 *	100MHz 603e	20MB/64MB	1.1GB	9.5-inch active matrix color	via dock	via dock
	\$3700	100MHz 603e	8MB/64MB	750MB	9.5-inch active matrix color	via dock	via dock
190cs	\$2300	33MHz 68LC040	8MB/40MB	500MB	9.5-inch passive matrix color	optional	16-bit stereo out
190	\$1700	33MHz 68LC040	4MB/36MB	500MB	9.5-inch passive matrix color	optional	16-bit stereo out
	\$1900	33MHz 68LC040	8MB/40MB	500MB	9.5-inch passive matrix gray	optional	16-bit stereo out

* Includes 14.4-Kbps internal modem.

were hard drives. (Apple will make a PowerPC upgrade available this fall for \$800, which will give your 500-series PowerBook a 100MHz 603e CPU.)

Infrared Communication Perhaps the most compelling feature of the PowerBook 5300 series is its built-in IR transceiver, located at the back of the notebook. You can exchange files with an IR-equipped Mac or PowerBook as if you were exchanging files using AppleShare file sharing over an AppleTalk network. An IR network runs at the same speed as a wired LocalTalk network: 230K per second.

The PowerBooks come with a basic program, Apple IR File Exchange, that establishes drop folders on your PowerBook; you can put files you want to share into these folders and have the software automatically copy the files to another Mac when you establish the IR link.

Of course, if you want to communicate with a Mac that is not IR-equipped, you'll have to make sure it has an IR pod attached to it. Farallon has already released the AirDock infrared pod for just this case (see the photo "The Expandable PowerBook"). At Farallon's estimated street price of \$70 each, having a few of these pods available should not be a problem. The AirDock works with LocalTalk, Ethernet, and Token Ring networks.

Leaving a Mac with an IR pod in a conference room or other meeting space is an awfully expensive way to guarantee network access at all times. Farallon is working on a cheaper way that should ship in spring 1996: a stand-alone pod that connects directly into the network. Because it will have to include Ethernet routing circuitry, it will likely cost several hundred dollars, but that's cheaper than an idle Mac.

To use the PowerBooks' IR transceiver, you aim the PowerBooks' back at the pod or another PowerBook's transceiver. As long as you're less than 6 feet away and have a line-of-sight connection, the link should have no trouble establishing itself. The IR transceiver is designed with a 30-degree range, so your aim can be slightly off. But note that the IR signal does not travel in a cone, so that 30-degree range is not constant as you move further away.

Some PC notebooks use the same IR transceivers that Apple does, based on the Infrared Data Association (IrDA) standard. But Apple's IR transceivers follow the IrDA standard only for the hardware, not

the software. That means that an IR-equipped PC has the same hardware as an IR-equipped Mac but can't communicate with the Mac. Apple expects to ship a software update later this year that will bring the Mac IR-control software into compliance with the IrDA standard—but the company says it can't guarantee this compatibility until it completes its testing this fall. If Apple can deliver the update, you'll be able to exchange data between your Mac and a PC.

Multimedia Presentation All the 5300-series PowerBooks have a 16-bit stereo sound-out port, as well as a sound-in port, so you can play and record high-fidelity sound. They all support 16-bit display on their LCD screens. There's also the standard PowerBook video-out port, which supports 8-bit color at 640-by-480-pixel resolution (the standard for a 16-inch monitor), thanks to 512K of built-in VRAM. The 5300ce model offers even more video: its 1MB of VRAM lets it display 16-bit video at 800-by-600-pixel resolution (the Super VGA resolution typically used with a PC's 16-inch monitor) for external monitors. The 5300ce displays only Super VGA resolution, while the other active matrix 5300's display only 640-by-480-pixel resolution. That's because active-matrix LCDs have fixed pixel resolutions.

In all 5300 models, the video-out connector is provided by a video card that plugs into the PowerBook's PDS.

True User Expansion By removing three screws at the base of the notebook, you can lift off the keyboard and replace the RAM card yourself, without voiding your warranty. It's a fairly straightforward process. If you remove two more screws, you can take out any of the PowerBook's components, such as a PDS card, Apple says, but the company advises users not to and will not cover any damage you may cause.

Other Features On the back of the 5300 series, you'll find the standard PowerBook ports and buttons: one each for reset, high-density SCSI, serial, ADB, and power. On the 5300's right-hand side, you'll also find a Kensington MicroSaver security slot, to which you can connect a locking strap.

A built-in microphone resides at the base of the LCD panel, as does a speaker. The PowerBook 500 series has two speakers, but the 5300's larger LCD panel takes up too much room for two speakers.

Weight (in pounds)	Battery	Enhanced Trackpad	Expansion
6.2	Lilon	no	expansion bay, 2 PC card slots
6.2	Lilon	no	expansion bay, 2 PC card slots
6.2	Lilon	no	expansion bay, 2 PC card slots
6.2	Lilon	no	expansion bay, 2 PC card slots
6.2	Lilon	no	expansion bay, 2 PC card slots
5.9	Lilon	no	expansion bay, 2 PC card slots
4.8	NiMH	yes	docking station
4.8	NiMH	yes	docking station
6.4	NiMH	yes	expansion bay, 2 PC card slots
5.9	NiMH	yes	expansion bay, 2 PC card slots
5.9	NiMH	yes	expansion bay, 2 PC card slots

which use a 100MHz 603e CPU, a trackpad (a first for the Mac subnotebooks), a 9.5-inch active matrix color LCD screen, and a NiMH battery (not the new LiIon battery). The \$3700 model has 8MB of RAM and a 750MB hard drive, while the \$4700 model offers 20MB of RAM and a 1.1GB drive. That's a lot of memory and storage for such a small computer, but that makes sense for people who use a notebook as their primary computer.

Owners of the 200-series Duos will see two immediate advantages with the 2300: the larger display (9.5 inches versus 8.4, and available only as an active matrix panel) and the faster CPU. You can get an Apple motherboard replacement for your Duo 200 series (for \$1300), which will give you PowerPC performance, but there is no upgrade for the LCD screen. (In fact, Apple recently discontinued the LCD upgrade, saying too few people bought it.)

There's also a less obvious advantage: the inclusion of the trackpad. Why? Because it's better than the original trackpad. The new trackpad lets you double-click by tapping it twice—no need to switch to a button (see the screen shot "Improved Software"). And you can even drag-lock by doing one-and-a-half taps (down, up, and back down). And there's more: you can drag an item, lift your finger briefly off the touch pad, put it down again, and resume dragging. It's almost as intuitive as finger-painting—it took me about a half hour to get the motions down so I didn't have to think about them.

Before you make the move from a 200-series to a 2300, bear in mind that its total cost is high com-

There is no internal modem bay as in earlier PowerBooks; you have to use a PC Card or connect an external modem to the serial port.

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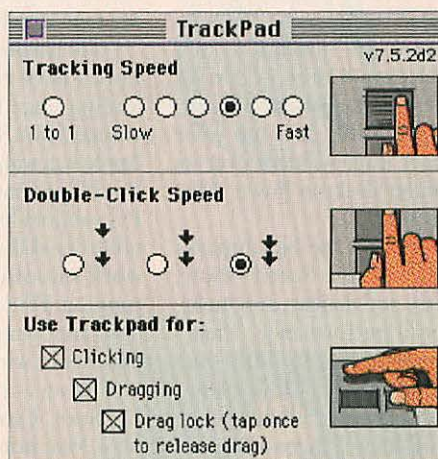
2300: A Duo with Teeth

The new PowerBook 2300 series (scheduled to ship in October) replaces the Duo 200 series. Apple is deemphasizing the Duo name, calling this subnotebook series simply the PowerBook 2300 series, although the *Duo* name stays with individual models.

These subnotebooks retain the advantages of the earlier Duos: light weight (4.8 pounds) and docking options (all the options compatible with the Duo 200 series will work with the 2300 series, Apple says). The 2300's also retain the disadvantages, such as the need to add components like floppy drives and docking stations for them to function like desktop Macs.

And if you've heard the rumors that the 2300 is the last Mac subnotebook, take heart: Apple says it will continue to offer sub-5-pound notebooks, although it's clear that the next-generation Mac subnotebooks will need to be completely redesigned to accommodate technologies like PC Cards, and thus will probably have a different form factor.

The 2300c comes in two configurations, both of



Improved Software The new PowerBook 190 and 2300 series have a double-clickable trackpad that you enable with this new control panel (left). The new Password Security Setup control panel (right) lets you require that a password be entered when the PowerBook is started or awakened.



pared with other notebooks'. After all, you'll likely need to add a modem (there's a bay inside for one) and some sort of dock (for networking, video output, connecting an external keyboard or mouse, or even just printing). Plus if you want to use an IR pod, you'll have to get a dock for it. When you're done accessorizing your 2300, you could easily have spent another \$1000—although the 2300 uses the 200-series Duos' NiMH battery and RAM cards, which means you preserve those investments.

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Build Your Own Home Page

*What you need to know to construct
your space on the Web*

So you've noticed more "www" lines appearing on business cards, heard casual "Check out my Web page" invitations at gatherings, and encountered numerous personal Web sites during your Internet travels. You've come across quite an assortment of prose, photos, sound bites, and even videos. And you're intrigued. You're eager to present your own multimedia pack-

age to the world, but wading through volumes of documentation about Web servers, Unix commands, and HTML (Hyper-Text Markup Language) seems daunting. What you need is a step-by-step guide: follow these instructions, and you'll have your own Web page up and accessible to Planet Earth in just a few hours.

Entry Requirements

You don't need a full-time Internet connection with a dedicated computer to establish your Web site. It's more practical for most individuals and small companies to rent *Web space*—disk space that holds Web information and supplies it to the Internet—from a commercial provider, generally an Internet service provider (ISP). (Some commercial online services, such as America Online and Prodi-

gy, also plan to provide Web space to their users. For information about connecting to the Internet via an ISP or an online service, see "Make the Right Connection," *Macworld*, October 1995.)

If you've browsed the Web, you probably have everything you need to publish a home page. The most important ingredient is access to a direct Internet connection (typically via a PPP [Point-to-Point Protocol] or SLIP [Serial-Line Internet Protocol] account with an ISP) that includes an allowance of disk space on the provider's Web server. Most ISPs offer this service, often through a Unix *shell* account, a command-oriented adjunct to your PPP or SLIP account, which you access through a terminal-emulation session. Alternatively, you can use an independent Web-space provider on the Internet. Such providers let you maintain your Web page remotely on their high-speed servers. In either case, you generally pay a monthly fee based on the amount of data in your page and the traffic volume or number of *bits* it incurs.

Weight (in pounds)	Battery	Enhanced Trackpad	Expansion
6.2	LiIon	no	expansion bay, 2 PC card slots
6.2	LiIon	no	expansion bay, 2 PC card slots
6.2	LiIon	no	expansion bay, 2 PC card slots
6.2	LiIon	no	expansion bay, 2 PC card slots
5.9	LiIon	no	expansion bay, 2 PC card slots
4.8	NiMH	yes	docking station
4.8	NiMH	yes	docking station
6.4	NiMH	yes	expansion bay, 2 PC card slots
5.9	NiMH	yes	expansion bay, 2 PC card slots
5.9	NiMH	yes	expansion bay, 2 PC card slots

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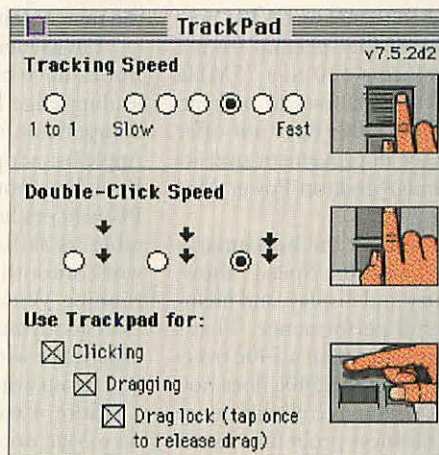
The 2300c comes in two configurations, both of

which use a 100MHz 603e CPU, a trackpad (a first for the Mac subnotebooks), a 9.5-inch active matrix color LCD screen, and a NiMH battery (not the new LiIon battery). The \$3700 model has 8MB of RAM and a 750MB hard drive, while the \$4700 model offers 20MB of RAM and a 1.1GB drive. That's a lot of memory and storage for such a small computer, but that makes sense for people who use a notebook as their primary computer.

Owners of the 200-series Duos will see two immediate advantages with the 2300: the larger display (9.5 inches versus 8.4, and available only as an active matrix panel) and the faster CPU. You can get an Apple motherboard replacement for your Duo 200 series (for \$1300), which will give you PowerPC performance, but there is no upgrade for the LCD screen. (In fact, Apple recently discontinued the LCD upgrade, saying too few people bought it.)

There's also a less obvious advantage: the inclusion of the trackpad. Why? Because it's better than the original trackpad. The new trackpad lets you double-click by tapping it twice—no need to switch to a button (see the screen shot "Improved Software"). And you can even drag-lock by doing one-and-a-half taps (down, up, and back down). And there's more: you can drag an item, lift your finger briefly off the touch pad, put it down again, and resume dragging. It's almost as intuitive as finger-painting—it took me about a half hour to get the motions down so I didn't have to think about them.

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190: THE LAST 040 NOTEBOOK

Apple has swiftly moved the Macintosh from the 680X0 family of CPUs to the PowerPC family. That's a good thing, as the next major revision of the Macintosh Operating System, code-named Copland and due at the end of 1996, won't support 680X0 Macs. In Apple's notebook line, it looks like the new 190 is the last 680X0 portable Mac. Aimed at the budget-conscious, the 190 (to ship in October) is essentially a

stripped-down 5300. Here's what's different.

- No PowerPC. Instead, the 190 uses the 33MHz 68LC040 CPU, the same one that's used in the Performa 630 and PowerBook 500 series (it has no math coprocessor). Apple does plan to sell a PowerPC upgrade for the 190 in 1996. At that time, the company also plans to offer an option to upgrade to an active matrix screen.
- Less RAM. Some configura-

tions will be sold with an anemic 4MB. The maximum RAM expansion is 36MB on these models and 40MB on the models that come with 8MB of RAM.

- No video-out port. But you can have one installed, via the same PDS card options available for the 5300 series. Apple expects its own video card will cost \$150.
- No IR transceiver. But you can have one installed for about \$80.

- No sound input, and no option to add a sound-in port.
- No active matrix color screen.
- No lithium-ion battery. The 190 sticks with the earlier PowerBooks' NiMH Type III batteries, although you can use the new Lilon battery in the 190 and recharge it there.
- Better trackpad. Ironically, the 190 does offer something the 5300 does not: the enhanced trackpad featured in the 2300.

Roadblocks to Performance

The new PowerPC PowerBooks deliver great features, so why not great performance? Apple says it can't get the same performance from a PowerPC CPU in a notebook that it can in a desktop Mac because of inherent design trade-offs. That makes sense, but Macworld Lab was surprised to find that, for CPU-intensive operations, the percentage of 040-to-603 speedup on a notebook was less than the percentage of 040-to-603 speedup for desktop Macs.

A 100MHz 603e-based PowerBook 5300c outperforms a 33MHz LC040-based PowerBook 540c by 25 percent in tests designed to measure CPU performance. Compare that with the speedup from a 33MHz LC040-based Performa 630 to a 75MHz 603-based Power Mac 5200 in CPU tests: 67 percent. It's clear that the PowerBook 5300c does not offer the same kind of performance improvement over its 680X0 predecessor as a similar desktop Power Mac does over its 680X0 predecessor.

As the Macworld Lab tests in the benchmarks "New PowerBooks Offer Twice the Speed" show, the hard drive, video circuitry and display, and inclusion of an FPU affect overall performance. That's why the 5300c is 75 percent faster than a 540c overall: the 5300c has an FPU, while the 540c does not, and that accounts for most of the overall difference in speedup. Because most business programs do not take advantage of an FPU, most notebook users won't see that kind of performance. Even presentation and multimedia programs don't use the FPU.

The slower-than-expected performance puzzled both *Macworld* and Apple. So to settle the matter, we expanded our test suite with a variety of tasks typically done from a desktop Mac—such as image editing in Adobe Photoshop, scientific analysis in Wolfram Research's Mathematica, and PostScript printing from Adobe PageMaker. Macworld Lab found that the key performance bottleneck is caching. The PowerBooks don't have a cache for frequently used data and instructions, so some programs operate less efficiently.

How does that compare with the PC competition? Poorly. The 75MHz Pentium notebook we tested, a Texas Instruments TravelMate 5000, was

half again as fast as any PowerBook 5300 model. By the time you read this, 90MHz Pentium notebooks, which should be about 20 percent faster, will be available, and 120MHz systems are in the works.

The Last Word

Despite only moderate performance improvement from the latest PowerBooks, I'm enthusiastic about them. While I'm not about to replace a desktop Mac with a notebook—a full keyboard, mouse, CD-ROM drive, and separate monitor are all important to me—I'm looking forward to the flexibility and power that the new notebooks will offer.

I'm particularly pleased that today's set of PowerBooks have capabilities competitive with those of leading-edge PC notebooks at prices that match the competition's. And many of the capabilities that Apple has adopted are available across its new PowerBook line, not just in high-end models—something PC vendors have not done. Plus, Apple brings to the table its skills at integrating technologies so they work smoothly. Witness the IR feature: on a PC running Windows, setting up for an IR connection is an annoying task that most users will not have had experience with, but on the Mac it's no different from setting up a standard share folder.

Sure, I still want page-up and page-down keys on a Mac notebook's keyboard; I hope Apple really will offer full IrDA compatibility for cross-platform infrared transmission; and I'll be happy when all models have the double-clickable trackpad—but that's about it for the features wish list.

Apple has clearly stopped dismissing the advancements—and more-moderate prices—in the PC market and stopped trying to live in a self-created castle in the sky. But it continues to bring useful innovations from its dream factory to the rest of the world. Together, these two approaches should give Macintosh users even better choices in the future. The new PowerBooks are the first solid evidence that the future is now. ■

Macworld executive editor GALEN GRUMAN has covered most PowerBook developments since the PowerBook 100 was introduced.

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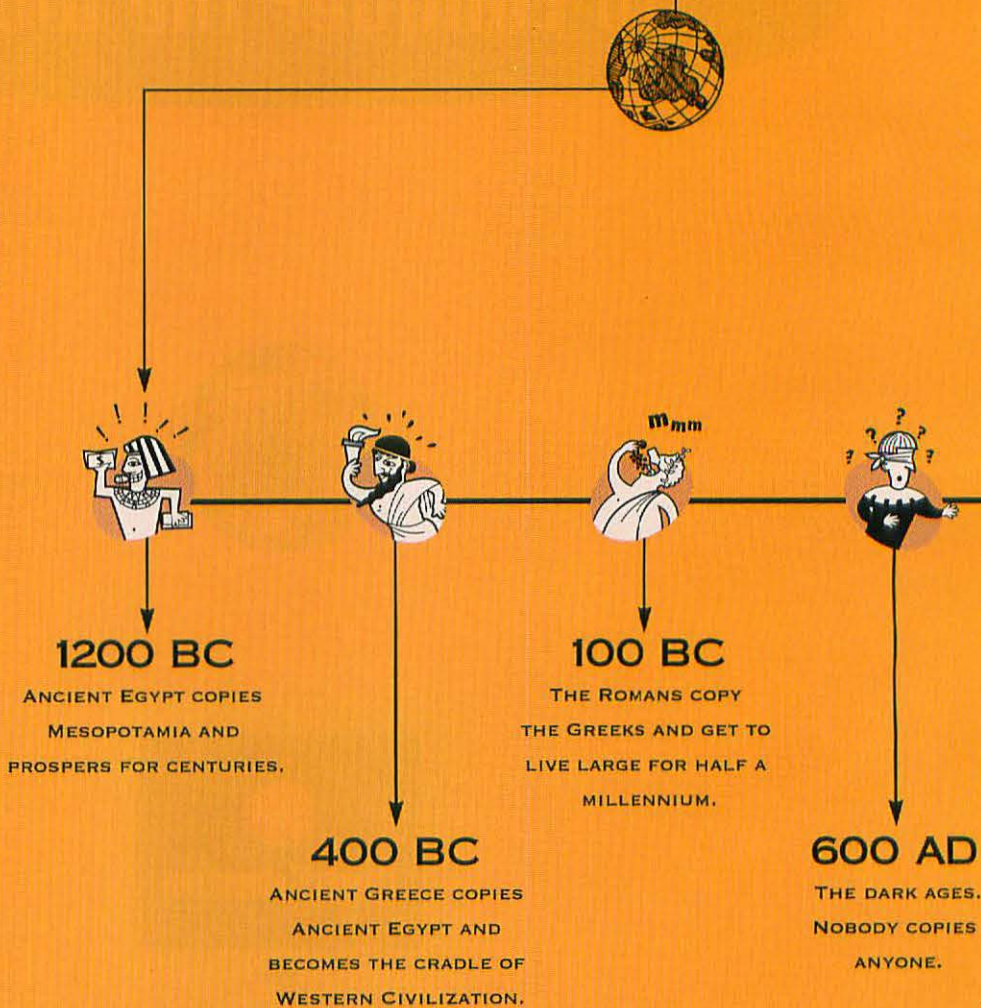
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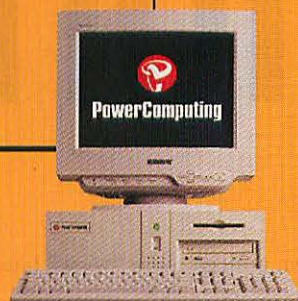
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Build Your Own

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Home Page

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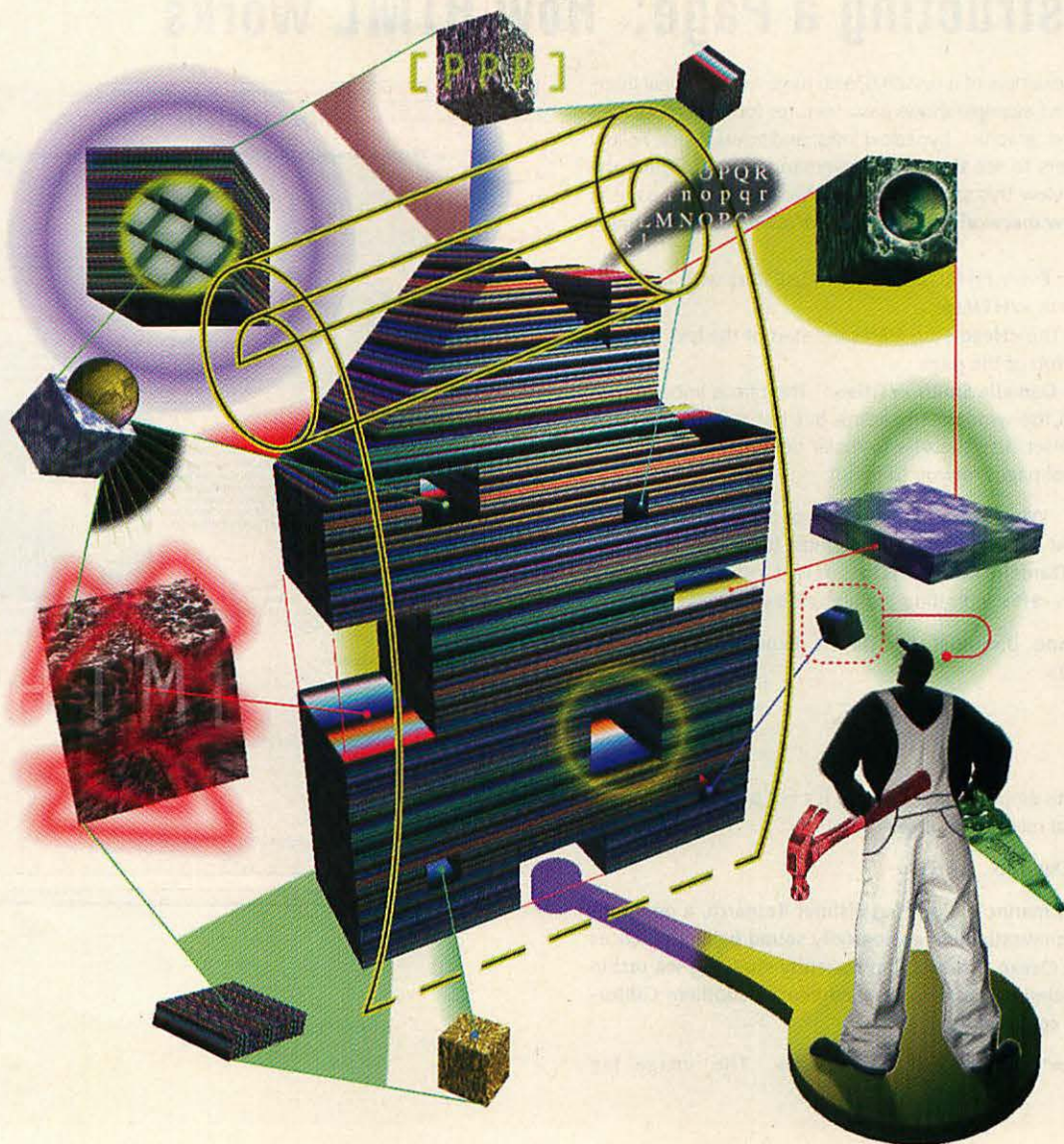
age to the world, but wading through volumes of documentation about Web servers, Unix commands, and HTML (Hyper-Text Markup Language) seems daunting. What you need is a step-by-step guide: follow these instructions, and you'll have your own Web page up and accessible to Planet Earth in just a few hours.

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JOHN HERSEY

Some ISPs offer Web space to individuals for free but charge a nominal fee for business users.

In addition to a Mac and software to connect to the Internet, you need

- a text editor, like Apple's SimpleText or TeachText or Mel Park's PlainText (free, mpark@nb.utm.edu), for composing the Web page,
- a Telnet terminal-emulation utility, such as NCSA Telnet (free, <ftp://ftp.ncsa.uiuc.edu/Mac/Telnet/Telnet2.7/>), for setting up personal Web space on the ISP's Web server (which involves typing commands under your Unix shell account),
- an FTP (File Transfer Protocol) utility, such as Jim Matthews' Fetch (free for educational and nonprofit organizations, \$25 for other users; ftp://ftp.dartmouth.edu/pub/mac/Fetch_2.1.2.sit.hqx), for publishing your page (that is, uploading its components to your Web space), and
- a Web browser, such as Netscape Communications' Netscape Navigator (\$59, free trial copy available from <ftp://ftp.netscape.com/netscape1.1/mac/netscape-1.1N.hqx>), for periodically testing your text offline and for browsing the Internet once you publish your page to verify that it's actually online.

For graphics, you may want to use software such as Adobe Photoshop (\$895, 415/961-4400) to resize GIF files, a GIF-conversion program such as DeBabelizer Lite from Equilibrium (\$129, 415/332-4343) or Kevin Mitchell's shareware GIF-Converter (\$40, <ftp://ftp.utexas.edu/pub/mac/graphics/gifconverter-237.hqx>), and Aaron Giles' free utility Transparency (<ftp://ftp.utexas.edu/pub/mac/graphics/transparency-10-fat.hqx>), which makes GIFs transparent (most users will see images on a gray background).

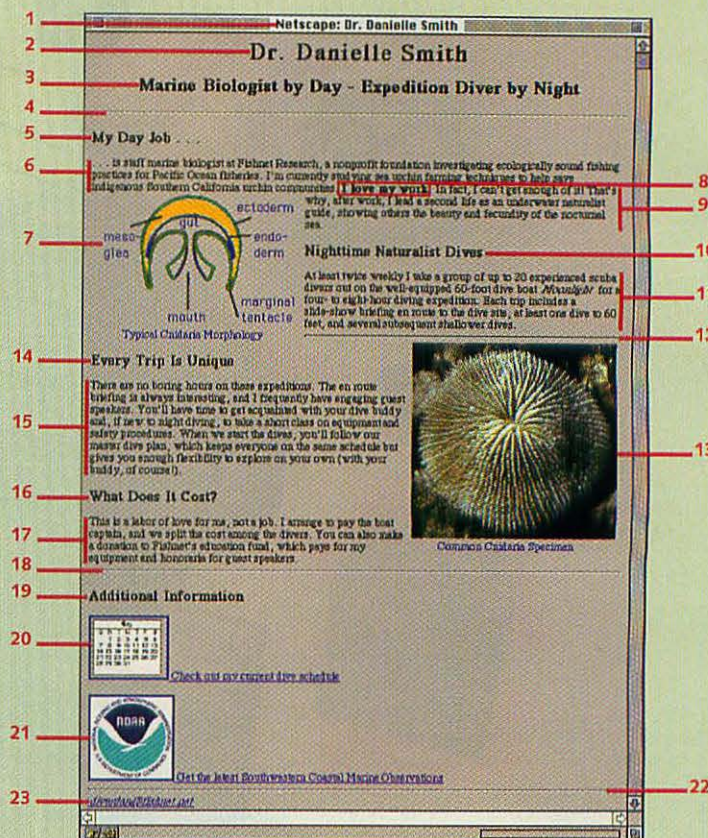
Designing Your Page
When creating your home page, keep in mind three design principles: simplicity, brevity, and functionality. The page should lead the reader clearly through its message, without eye-jarring graphics or distracting ornamentation. Like a good

by
Mel Beckman

Constructing a Page: How HTML Works

Here is an example of a personal Web page for a fictional Internet user. This example shows basic features found in most Web pages—text, graphics, hypertext links, and interactivity. Follow the numbers to see the HTML commands used to build the page. (To view this sample, look at Macworld's Web page at <http://www.macworld.com/password/mwlinks/build.html>.)

- 1 **<HTML>** Every HTML document must start with **<HTML>** and end with **</HTML>**.
- 2 **<Head>** The **<Head>** tag marks the start of the text that will run at the top of the page.
<Title>Dr. Danielle Smith</Title> The title is important; it appears in the window's heading bar but not on the page itself. Browsers use the title to make bookmarks, saving the addresses of pages for you to revisit.
- 3 **<Center>** While you don't have a lot of control over a page's format, you can center elements in most browsers.
<H1>Dr. Danielle Smith</H1> HTML offers six heading levels, with **<H1>** indicating the highest level.
- 4 **<H2>Marine Biologist by Day - Expedition Diver by Night</H2>**
</Center>
</Head>
<Body>
- 5 **<HR>** This empty tag (notice that it's not part of a pair) adds a horizontal rule to the screen.
- 6 **<H3>My Day Job . . .</H3>**
- 7 . . . is staff marine biologist at Fishnet Research, a nonprofit foundation investigating ecologically sound fishing practices for Pacific Ocean fisheries. I'm currently studying sea urchin farming techniques to help save indigenous Southern California urchin communities.
- 8 **** This image tag



résumé, the page should offer a brief initial presentation—about as much information as you'd put on a single sheet of paper. Information depth in a Web page comes through hypertext links to additional pages. Use text and graphics to present the message you want to get across and incorporate an interactive element (such as E-mail) that lets the reader communicate with you. Finally, a page should be functional; the information and links it presents should be germane to the topic, not superfluous.

Here are tips on implementing several important features.

- The first text, a window title, is important because most Web browsers use it when storing *bookmarks* (the addresses of pages you want to revisit). A meaningful title lets users more easily find your page in their bookmark list for repeat visits. Content indexers, such as WebCrawler (<http://www.webcrawler.com/>), collect information about the content of a page, but the title is what usually comes

up in an index search. For example, if you want to be indexed by name, then your name should be in the title.

- Embedded graphics are most effective when used judiciously. Graphics should be small—under 25K—and few in number. Many users will access your Web page over modem connections as slow as 9600 bps, a speed at which it takes 30 seconds to display 25K of graphics. Consider using thumbnail graphics with hypertext links to full-size versions.

- Hypertext provides links to local files containing information that changes frequently and to other Web sites with related information. Links to local files let you divide information into subsidiary files, simplifying your presentation; links to remote sites are the heart and soul of the World Wide Web. By providing useful off-site links, you give the reader the benefit of your Web experience.

- A hypertext link to a form for composing a message to you lets the reader interact with you, the Web author. This

can be a simple form for an E-mail reply, or you can build custom forms to perform tasks such as reader surveys, order processing, and product registration (for more about forms processing, see Carlos Pero's tutorial at <http://robot0.ge.uiuc.edu/~carlosp/cs317/cft.html>).

There are hundreds of other features available to Web-page authors, with more being invented every day, but these basic features will get you started. (You can find links to additional design information at http://www.yahoo.com/Computers/World_Wide_Web/Page_Design_and_Layout/).

Starting Construction

Web pages are not constructed in a WYSIWYG fashion—at least not yet. Instead, you compose a Web page description using a special language called HyperText Markup Language (see the sidebar "Constructing a Page: How HTML Works"). HTML is not a programming language like C or Pascal; nor is it a complete page-description language

- (****) has two attributes: the first specifies the source (**<Src>**) of the GIF file containing the graphic; the second says to align the graphic on the left side of the screen, allowing text to flow on the right. HTML has no provision for captioning graphics, so you must incorporate captions in the graphics file.
- 8 ** I love my work. ** Use **** to indicate bold, **<I>** to indicate italics. Notice that body text following the **** tag doesn't start a new paragraph even though it's on a new line. You must start new paragraphs explicitly in HTML.
 - 9 In fact, I can't get enough of it! That's why, after work, I lead a second life as an underwater naturalist guide, showing others the beauty and fecundity of the nocturnal sea.
 - 10 **<H3>Nighttime Naturalist Dives</H3>**
 - 11 At least twice weekly I take a group of up to 20 experienced scuba divers out on the well-equipped 60-foot dive boat **<I>Moonlight</I>** for a four- to eight-hour diving expedition. Each trip includes a slide-show briefing en route to the dive site, at least one dive to 60 feet, and several subsequent shallower dives.
 - 12 **<HR>**
 - 13 ****
 - 14 **<H3>Every Trip Is Unique</H3>**
 - 15 There are no boring hours on these expeditions. The en route briefing is always interesting, and I frequently have engaging guest speakers. You'll have time to get acquainted with your dive buddy and, if new to night diving, to take a short class on equipment and safety procedures. When we start the dives, you'll follow our master dive plan, which keeps everyone on the same schedule but gives you enough flexibility to explore on your own (with your buddy, of course!).
 - 16 **<H3>What Does It Cost?</H3>**
 - 17 This is a labor of love for me, not a job. I arrange to pay the boat captain, and we split the cost among the divers. You can also make a donation to Fishnet's education fund, which pays for my equipment and honoraria for guest speakers. This text contains no new HTML tags but does illustrate how headings start new paragraphs and how text flows around graphics—this time aligned to the right.
 - 18 **<HR>**
 - 19 **<H3>Additional Information</H3>**
 - 20 ** Check out my current dive schedule<P>** Hypertext provides a link to a local file containing frequently changing information (Calendar) and a link to another Web site carrying related information (NOAA). In the first link, the HRef attribute specifies the name of a local file, CurrentSchedule, as its target. Clicking on this link displays the contents of the local file. The first link encloses both a graphic, specified by the **** tag, and the "Check out my current dive schedule" text. You can see by the blue color in the browser view that both the graphic and text are hot.
 - 21 ** Get the latest Southwestern Coastal Marine Observations** The remainder of the page consists of two additional hypertext links; this one is to an off-site Web page (at thunder.met.fsu.edu).
 - 22 **<HR>**
 - 23 **<I>diverdan@fishnet.net</I>** This hypertext link is to the default E-mail form, which lets the reader compose E-mail automatically addressed to diverdan@fishnet.net.
</Body>
</HTML> The last two tags mark the end of the Web page.

like PostScript. HTML is simply a way of describing the general format of a text document for display by a Web browser. Many details of the display—fonts, page dimensions, and colors—are under the user's control. Your HTML description specifies the general location of text and graphics, textual emphasis such as bold and italic, and hypertext links. This limited control is a blessing and a curse: a blessing because it enables Web access for a variety of hardware and software platforms, and a curse because you can't predict exactly how your Web page will look to every user. To compensate for this, avoid getting too fancy with page design.

To start the page-building process, collect all the elements for your page in a folder. Then launch your text editor and create a file named `index.html`, the standard name for the first page of a Web site.

For this article, I used Apple's SimpleText editor. Eventually you'll want to invest in an HTML editor, such as Rich Giles's shareware HTML Editor (\$25;

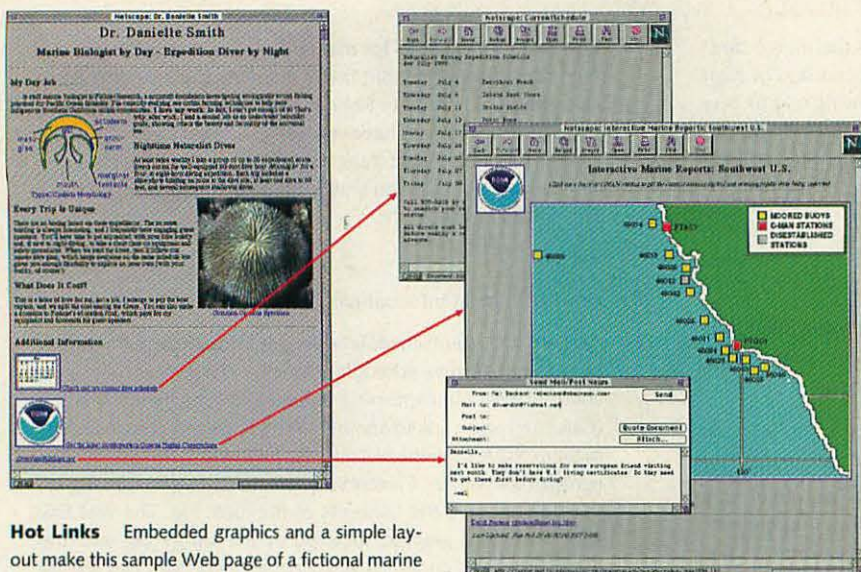
http://dragon.acadiu.ca/~giles/HTML_Editor/Documentation.html). Commercial HTML editors include SoftQuad's HoT-MetaL Pro (\$195; 416/239-4801) and Ceneca Communications' PageMill (\$195; 415/842-6810), scheduled to ship in the fall. These editors offer HTML coding assistance and previewing that simplify Web-page composition. You will find links to several Macintosh HTML editors at http://www.yahoo.com/Computers/World_Wide_Web/HTML_Editors/Macintosh/.

The first document you'll make is a basic HTML template for any Web page, so you may want to save a copy under a name such as `template.html`. The template contains a skeleton of HTML commands that you'll flesh out during the construction process (see the sidebar "Mastering the HTML Lexicon"). Each HTML command, called a *tag*, consists of a word enclosed in delimiters (`< tag >`). You can type tags in uppercase or lowercase letters, but some authors use upper-

case to make the tags stand out in text.

Often, an HTML tag is actually a pair of tags: the starting tag consists of a word, and the ending tag consists of the same word prefixed by a slash (/); the tag *encloses* everything between. The **<HTML>** tag encloses the entire HTML document—everything you want to appear on the page, you must enter between the **<HTML>** and **</HTML>** tags. The **<Head>** and **</Head>** tags define the document's header section, which encloses text displayed at the top of the page, including the **<Title>** tag used in bookmarks. The **<Body>** tag encloses the page's main text and graphics.

Within the text, you can use formatting commands, such as the **<Center>** tag, which centers anything it encloses. *Heading tags* specify heading levels, with **<H1>** the highest and **<H6>** the lowest. While you don't have direct control over the appearance of headings, most browsers use bold text with a large typeface for **<H1>** and progressively smaller typefaces for lower levels.



Hot Links Embedded graphics and a simple layout make this sample Web page of a fictional marine biologist easy to read. Hot links provide ready access to more-detailed information, related Internet sites, and E-mail communication with the Web author.

Fleshing Out the Body

After you complete the header part of your document, you are ready to compose the body, which involves diving deeper into HTML.

An empty HTML tag doesn't enclose anything but instead adds some kind of visual element to the display. For example, `<HR>` adds a horizontal rule to the screen. Other empty tags include `<P>` to start a new paragraph and `
` to cause a line break. Body text flows continuously on the Web page without regard to where lines end in your text documents; the user controls text width by changing the size of the browser window.

You don't paste graphics directly into an HTML document as you would with typical Mac word processors. Instead, you use the image tag, ``, to refer to an external file containing the graphic. The `` tags work in conjunction with tag attributes, which provide additional information for empty tags. An attribute consists of a "keyword=argument" pair. An attribute that contains `Src=filename` indicates the source of the file containing the graphic. Web graphics can be GIF or JPEG; both provide automatic image compression. Another attribute addresses alignment; `Align=Left` means that the graphic will line up with the left side of the screen, allowing text to flow by on the right. If you don't specify alignment with an attribute, the graphic appears with no text on either side.

Remember that you must start new paragraphs explicitly in HTML. A heading tag is one way to start a new paragraph, as is the `<P>` tag. To emphasize text, `` for bold and `<I>` for italic are

the two primary text style tags at your disposal; you can't specify other Mac text styles, such as outline or underline. Many browsers use underlined text to indicate hypertext links.

To see how your Web page will look in a browser, fire up your browser, choose Open File from its File menu, and select the index.html document. As you build your Web page, you can update the browser view by pressing the Reload button. Try changing the size of the browser window and observing the resulting page layouts; you'll get some appreciation for the limited control you have over final appearance. (For an in-depth look at browsers, see "Pick the Best Browser," *Macworld*, October 1995.)

Adding Links

Adding hypertext links, which you can embed anywhere on the page, is the last major composition step. A hypertext link is called an *anchor*; you indicate it by the HTML tags `<A>` and ``, along with an HRef attribute, an attribute that specifies the link's target, or reference. When displaying a referenced local file, Web browsers present plain text, with no formatting, in a nonproportional font, unless the file is an HTML document—then the browser formats the document according to the HTML commands. Dealing with hypertext links that include embedded graphics can get a little more involved, because you must place the `` tag within the `<A>` tag.

Every browser lets a user back out of a displayed page (for example, using the Back button in Netscape Navigator), so you don't need to provide users with an explicit way to return to your main page. However, backward links do have a place in more advanced Web-page design. As you enhance your home-page design,

you'll want to learn about this and other HTML style conventions. The excellent online style tutorial at <http://www.w3.org/hypertext/WWW/Provider/Style/Overview.html> will bring you up to speed.

Everything enclosed by an `<A>` tag is *hot*; that is, the user can click on the enclosed text or graphics to execute the link. A browser may give you visual clues that an element is hot—for example, coloring hot text blue. You can embed a small graphic, such as an icon, in a hypertext link to give the look and feel of a clickable button.

You can also use an HRef attribute containing a URL (Uniform Resource Locator, an Internet address) to point to a Web page on a remote Web site; for example, the URL for *Macworld's* page is <http://www.macworld.com>. You type URL link targets exactly the same way you would type URLs in a browser, and they can point to the same kinds of destinations: HTML documents (`http://`), FTP sites (`ftp://`), Gopher sites (`gopher://`), and even Usenet newsgroups (`news:`).

You could set up another link using the HRef attribute of "mailto:", which displays an E-mail form when clicked, automatically filling in the recipient name. Not all browsers support the built-in mailto form; browsers that don't will simply ignore the link.

Try all the hypertext links to make sure they work and, if possible, try viewing the page using a variety of browsers. If you view your page with just one browser, you won't know if other browsers display your page correctly.

After making any necessary final tweaks, you're ready to publish.

Publishing

Many ISPs use Unix host systems to serve Web pages and provide you with a shell account that you access via FTP and Telnet to upload and maintain your Web-page information. However, not all ISPs follow this convention, so check with your provider to see if a different procedure applies in your case.

Publication starts with logging on to your Unix shell account and performing a onetime initialization of your personal Web space. You'll need your shell account user-ID and password, which may be different from your PPP or SLIP log-in user-ID and password. Check with your ISP if you're unsure.

Launch a Telnet terminal emulator such as NCSA Telnet, open a connection to your ISP's host system, and log in. Here's a rundown on the Unix commands you'll type.

- First, type `mkdir public_html`, which creates a special directory named

`public_html` in your shell account's home directory.

- Then type `ls -ld public_html`, which displays the Unix directory so you can verify its creation and permission flags. The permission flags are the string of characters `drwx-----`.

- Next, type `chmod o+rx public_html`, which adds public permissions to this directory, so that others can access your Web page.

- Finally, type `ls -ld public_html` to redisplay the Unix directory showing the new permission flags. You should end up with the trailing `---` flags on the directory line changed to `r-x`.

- In preparation for the next step, type `cd public_html` to change your current working directory to the new directory; everything you do from this point on will be inside this directory. Don't log off from your Telnet session yet, however, as

you may need to do some additional work later, depending on how your ISP's Unix is configured.

The next step is uploading your home-page files. Launch Fetch or a similar FTP utility, open a connection to your ISP's host system, and log in. Specify `public_html` as the starting directory for FTP. You're going to upload all the files from your home-page folder to that directory, which represents your personal Web space.

Start with the graphics files. Click on the Put File button, navigate to your home-page folder, select the first graphics file, and click on the Open button. You'll see a dialog box asking you to confirm the file name and file-transfer format. Graphics files contain binary data that shouldn't be converted during transfer, so choose the Raw Data format from the dialog box's pop-up menu.

Press OK to transfer the file. And then repeat the transfer process for each graphics file.

Next transfer your text files in a similar fashion. Since Macintosh and Unix systems have different line-ending conventions, you must convert the files to Unix format. (Fetch does this for you automatically via its default Text format.)

With files transferred, you're almost finished. Return to your Telnet session and type the `ls -l` command; you should see a list of all your home-page files. If the permission flags end with `"r---"`, your files will be read-only to the general public, so you're finished. If the flags end with `"---"`, you'll need to execute the command `chmod o+r *` to add read-only permission to your files. Verify the change by typing `ls -l` again to list the files and permissions. Once you've successfully transferred your files and have the permission flags set correctly, you've officially published your page on the Internet. Log off your Telnet and FTP sessions and proceed to the Moment of Truth.

Mastering the HTML Lexicon

To create your own home page, you need to learn HyperText Markup Language. However, as a Web publisher, you are faced with a bit of a dilemma. Most Web browsers, including America Online's, support HTML 2.0 tags. But one of the most popular browsers, Netscape Communications' Netscape Navigator, also supports some HTML 3.0 (which isn't final yet) tags, such as background, tables, and blink. If a Web page says "Enhanced for Netscape 1.1," without that browser you may not be able to see everything on that page.

It's impossible to write HTML text that works with all browsers. For example, `<Center>` is an "orphan" tag; it's not an official HTML standard, although because it's widely used most browsers do support it. The HTML Version 3 Working Group of the World Wide Web Consortium (W3C), which decides on HTML specifications (see <http://www.w3.org/hypertext/WWW/MarkUp/MarkUp.html>), settled on `<H1 Align=Center>` as a centering command, although many browsers don't yet support it. Most browser developers, except for NCSA's Mosaic (which doesn't support `<Center>`), are planning to support both variations.

Tip: To help yourself learn HTML, create a sample page of HTML commands. For example, create a file in which you surround the words *Header 4* with `<H4>` and `</H4>`, so you can print the page and see what the tags actually look like. Then, when you design your page, you can choose the tags you like best.

Here are some basic HTML commands, along with their functions, that should work with most browsers.

` ` Anchors a hypertext link.

` ` Sets bold text.

`<Body> </Body>` Defines the document's body section.

`
` Inserts a line break.

`<Center> </Center>` or `<H1 Align=Center> </H1 Align=Center>` Centers the enclosed text and objects.

`<H1> </H1>` to `<H6> </H6>` Defines heading text (there are six hierarchical levels).

`<Head> </Head>` Defines the document's header section.

`<HTML> </HTML>` Defines an HTML document.

`<HR>` Inserts a horizontal rule.

`<I> </I>` Sets italic text.

`` Inserts an image file with specified alignment (right or left).

`<P>` Inserts a paragraph break.

`<Title> </Title>` Defines the document's title.

Moment of Truth

To verify that you've correctly published your home page, launch your Web browser and open your home page via the Internet. Choose Open Location from the browser's File menu and enter your home page's URL, which consists of

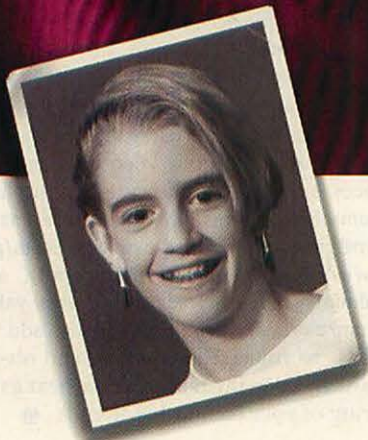
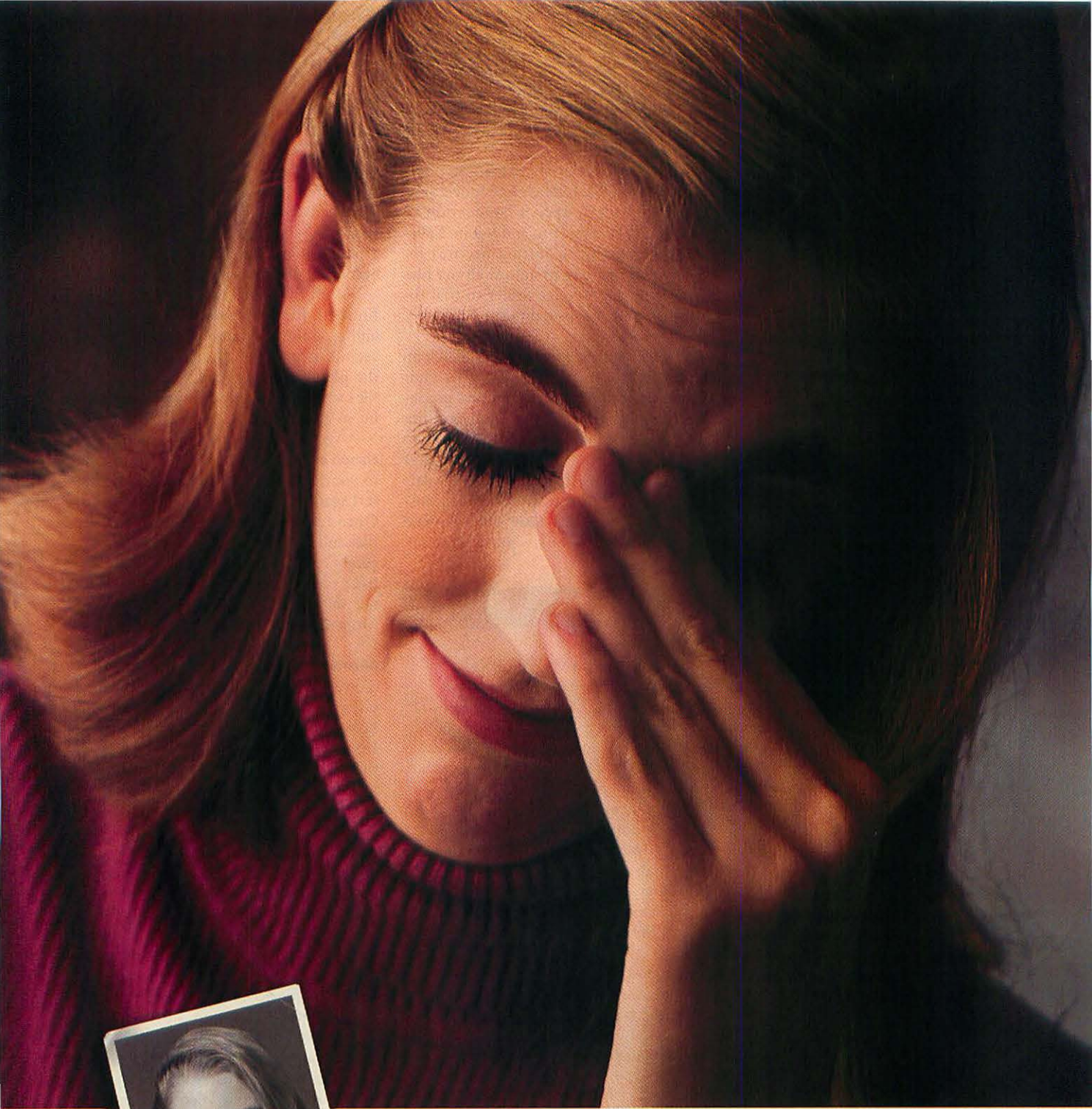
- `http://`,
- your ISP's Web site name followed by a slash, and
- the tilde character (~), followed by your shell-account log-in name and a trailing slash.

After typing in your URL, press the Open button and you should see your home page appear. If it doesn't, recheck your Unix file permissions or ask your ISP for assistance.

With your Web page live on the Net, you'll want to advertise the fact. Send messages to your friends and colleagues, as well as the various Web-indexing services, such as the following mailing lists: [comp.infosystems.www.announce](mailto:comp.infosystems.www.announce@nscn.com), ncsa-w@nscn.com (see <http://www.gnn.com/gnn/w/whats-new-form-email.html>), and admin@yahoo.com (see <http://www.yahoo.com/bin/add>). You'll also want to add the URL to your business cards, and oh-so-casually drop invitations at the next gathering of your techno-hip friends. **m**

Last Month: Macworld's "Internet Essentials" special report helped you connect to the Internet and pick the best Web browser.

Mel Beckman (mel@beckman.org) is a Web author, network administrator, and technical author who spends way too much time on the Internet.



Brittany Stromberg

Dallas, Texas

WRITER

WORDPERFECT FOR MACINTOSH USER

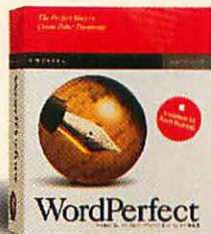
Used to have a tin grin.

Used to dance the pogo.

Used to use Microsoft Word.

Ask Brittany Stromberg about her past with Microsoft Word and she just shakes her head. "I never even use it anymore," she says. "The interface really bugged me." Now she uses WordPerfect® for the Mac. It runs faster. Requires less disk space. And offers things Word simply doesn't. Like new version 3.5 with the ability to import and create your own Internet pages. Bookmarks for linking text. It'll even "speak" what you write. All good reasons to bury Word in the closet. Right next to those old prom pictures.

**New version 3.5
with Internet
publishing tools.
Switch for \$89.***



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today, and prepare for electronic
commerce tomorrow*

E-Mail

You may have just started using the Internet for your business, but scientists, academics, and computer programmers have been using it for years. It was designed specifically as a public network for sharing information. Because the availability of information was the priority, provisions for data security were not considered essential. But now that you're sending proprietary business information over the Internet

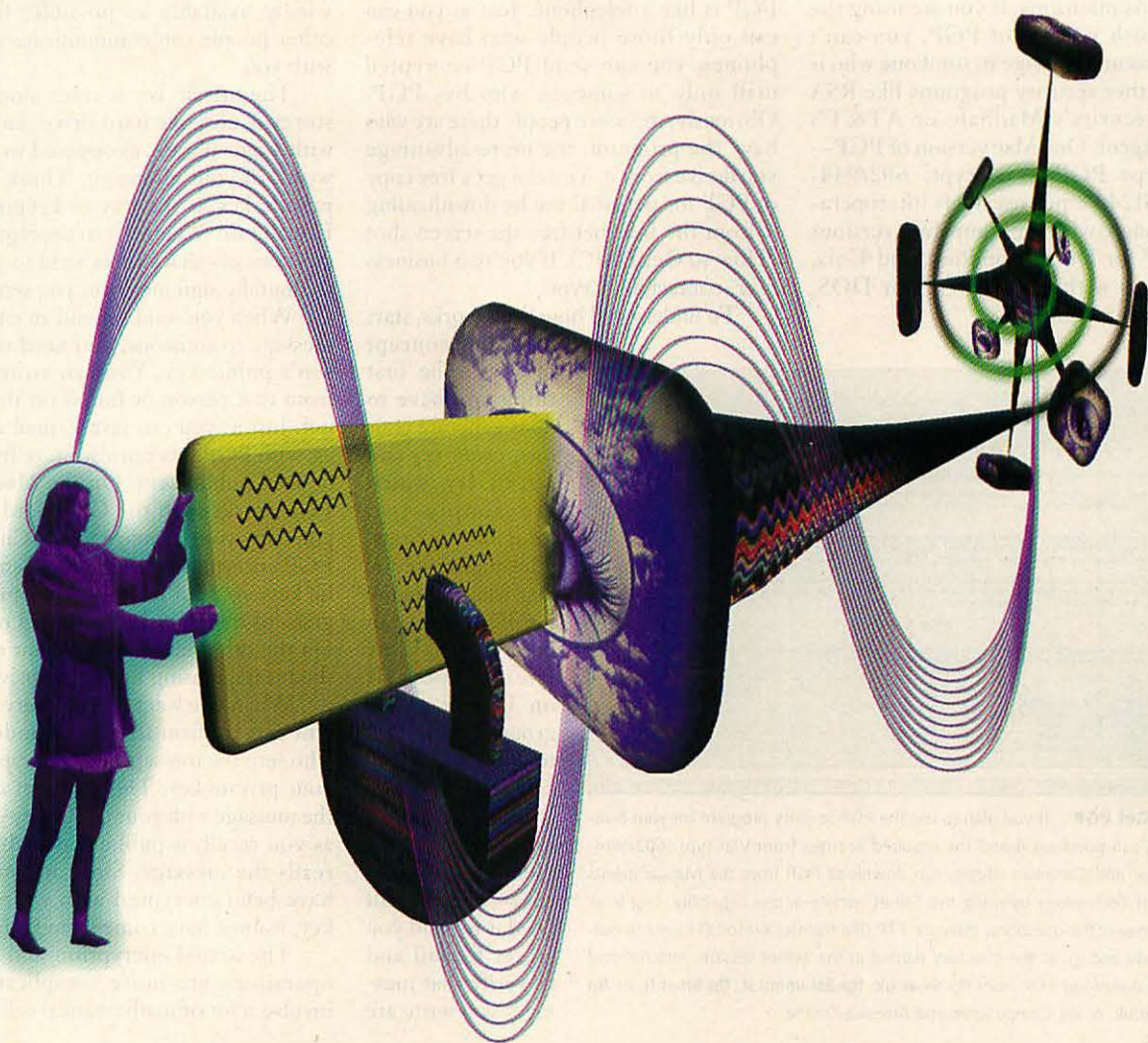
that openness can become a drawback. You need to take steps to protect your communications.

After all, you may prefer transmitting business correspondence over the Internet to sending it through the U.S. Postal Service, and you may even find E-mail more convenient than trying to reach someone by telephone. But remember—it's not hard for someone to intercept your electronic mail. The news media are filled with stories of hackers tapping and tiptoeing into places they're not supposed to be. And when you send E-mail, it's almost like you're talking into a cordless telephone, except that every eavesdropper can record your conversation. Of course, as with phone lines, it's illegal to tap electronic communications, and law-enforcement agencies need a warrant to do so.

Before you start imagining your most confidential documents suddenly being scrutinized by your competitors, and you swear off ever using the Send command again, be aware that you can protect your communications. I'll show you some online-security methods using shareware, software, and some plain old common sense about how to incorporate them easily into your routine. You may also be wondering how the heck to transact business over the Internet if you can't even protect your E-mail—so we'll look at how major financial institutions are already addressing these concerns (see the sidebar "Money on the Line").

Secure Electronic Mail

You can buy lots of networking hardware and communications software that incorporate a variety of security features into file transfers, but they're mostly for corporate use. If you're a small-business owner interested in protecting your Internet mail, there's a simple, effective two-step process that you can



use: encrypt your E-mail and sign it. If you ever sent encoded messages to friends as a kid, this is the same process, only digital. *Encrypting* means scrambling your messages so that only the authorized recipient can unscramble it. Think of it as putting your electronic mail into envelopes that only the recipient can open. Use encryption when you want to keep a secret.

Think of *signing* as the digital analog to a handwritten signature on the bottom of a letter. Signing proves to the recipient that the message came from you, and it was not forged or modified in transit. Send signed messages when you want to prove authenticity. For instance, if you receive a purchase order over the Internet, you will want a valid signature on it. Sending messages that are encrypted and signed provides both confidentiality and authentication.

Why go to the trouble of all this secret agent stuff? Because when electronic mail is broken down into digital bits, it becomes vulnerable to inter-

ception and eavesdropping. It's like a postcard that anyone can read along the way. *Spoofing* an E-mail message—sending a message purporting to come from someone else—is easy. Even *Macworld* columnist David Pogue found himself the victim of a spoofer. It is only a little harder to alter a legitimate message in transit. Savvy Net users don't send credit card numbers—or any other sensitive information—over the Internet, and they think twice before accepting a suspicious E-mail message as genuine.

There are several security programs for electronic mail available on the Internet, but only one of them comes in a Macintosh version. It's called PGP, which stands for "pretty good privacy." (Why only pretty good? Because the original author of the program, Phil Zimmermann, was a fan of Garrison Keillor's *Prairie Home Companion* radio show, which occasionally mentioned Lake Wobegon's Pretty Good Grocery.)

All these programs work similarly,

by

Bruce Schneier

but unfortunately they're not interoperable across platforms. If you are using the Macintosh version of PGP, you can't send a secure message to someone who is using other security programs like RSA Data Security's MailSafe or AT&T's SecretAgent. One Mac version of PGP—ViaCrypt PGP (ViaCrypt, 602/944-0773, \$124.98 per user)—is interoperable, though, with the company's versions of PGP for DOS, Windows, and Unix, as well as with MIT's PGP for DOS, Unix, and Macintosh.

The More the Merrier

PGP is like a telephone. Just as you can call only those people who have telephones, you can send PGP-encrypted mail only to someone who has PGP. Obviously, the more people there are who have the program, the more advantage you derive from it. You can get a free copy of PGP for personal use by downloading it from the Internet (see the screen shot "How to Get PGP"). If you're a business user, contact ViaCrypt.

To understand how PGP works, start

with the concept of keys. The first thing you have to do is generate your own *public key* and *private key*, which are simply two long bit strings. The public key is just what its name implies: you can mail it to your friends, post it on Usenet newsgroups, and send it to a PGP public-key server on the Internet. Think of it as part of your identity information—others will need it to send you secret E-mail and to verify that messages you write are

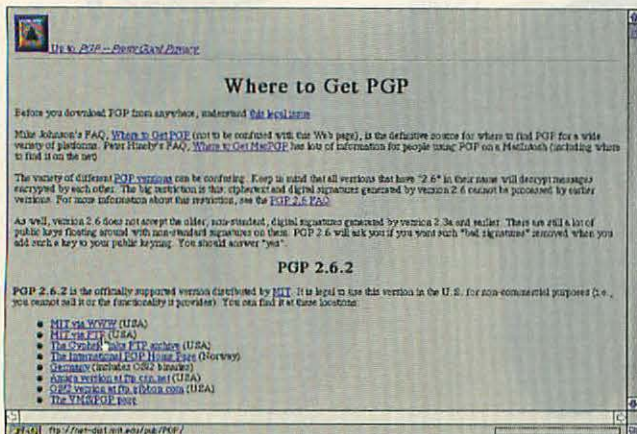
authentic. You want this key to be as widely available as possible; it's how other people can communicate securely with you.

The private key is yours alone. PGP stores it on your hard drive, encrypted with a pass phrase, as opposed to a single word, of your choosing. Think of your private key as the way to keeping your E-mail safe. You use it to decrypt encoded messages that others send to you and to digitally sign messages you send.

When you want to send an encrypted message to someone, you need that person's public key. You can either get it from that person or find it on the Internet. Just as you can save E-mail addresses, with PGP you can also store frequently used public keys. On the Macintosh, PGP works with the Clipboard. When you copy your message to the Clipboard, PGP encrypts it with the recipient's public key; you can then use your mail program to transmit the encrypted message. On the other end, the recipient decrypts the message using his or her private key.

When you want to make sure a recipient can confirm that it was indeed you who sent the message, you encrypt it with your private key. The recipient decrypts the message with your public key—which, as you recall, is publicly available—and reads the message. Since it could only have been encrypted with your private key, it must have come from you.

The actual encryption and signing operations are more complicated and involve a lot of mathematical calculation,



How to Get PGP If you plan to use the PGP security program for your business, you can purchase it and the required licenses from ViaCrypt (602/944-0773). U.S. and Canadian citizens can download PGP from the Massachusetts Institute of Technology by using the Telnet remote-access capability. Log in as **getpgp**, answer the questions, then use FTP (file transfer protocol) to get to **net-dist.mit.edu** and go to the directory named in the Telnet session. International users can download PGP from **ftp.ox.ac.uk**, **ftp.dsi.unimi.it**, **ftp.funet.fi**, or **ftp.demon.co.uk**, or via CompuServe and America Online.

Money on the Line

You may be wondering, "If even my E-mail isn't secure, how are companies going to conduct financial transactions over the Internet?" Nevertheless, several financial institutions are putting mechanisms in place to allow for digital payments, some of which are more secure—and in some cases more private—than simply sending your credit card number over E-mail.

Credit card leaders Visa and MasterCard, along with credit card processing leader First Data, are all working with Netscape Communications, which has created security software to go along with its World Wide Web browser. First Virtual Holdings, a company so virtual that it has no main office (its president works in Rancho Santa Fe, California), has its own credit card-based system, while England's National Westminster Bank and Midland Bank are collaborating on a multicurrency digital-cash card system called Mondex to handle international transactions.

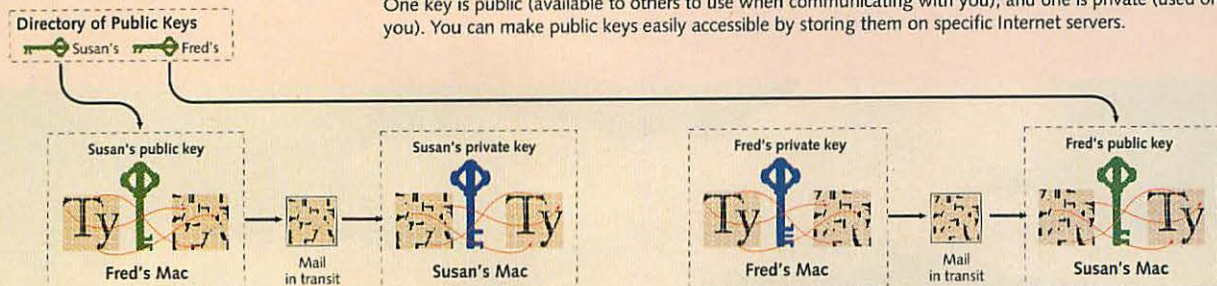
At the same time, CyberCash, a Virginia-based firm headed by Verifone founder Bill Melton and Internet guru Dan Lynch, is bringing conventional credit card transactions to the Internet. The CyberCash electronic-payment system uses cryptography to prevent eavesdroppers from stealing and unscrupulous merchants from overcharging. By contrast, NetCheque, developed

at the University of Southern California, brings the model of a paper check to the Internet. An account holder can send an electronic document that a recipient can deposit as a check. The document contains the name of the payer and the financial institution, the payer's account number, the payee's name, and the amount of the check. And like a paper check, it contains a signature—in this case a digital one. The check will be endorsed by the payee, again with a digital signature, and deposited electronically into a bank account.

None of these systems, however, can protect your privacy on the Internet. They can all compile statistics about customers who use these electronic forms of money: how much they spend, what kinds of things they buy, and when they buy them. Before electronic consumers can get true personal privacy, we need the electronic equivalent of cash. That's where DigiCash, a Netherlands-based firm founded by cryptography expert David Chaum, comes in. Its Internet payment system, called eCash, provides digital money without an audit trail, protecting the privacy of its users. The eCash system is currently being tested in a worldwide pilot program. Pretty soon, you'll see money flying all over the Internet.

Secure E-mail: Scrambled Examples

The PGP (pretty good privacy) method of E-mail security uses the concept of a pair of digital keys (which are random bits similar to a password), which lock up, or scramble, the data, and unlock, or unscramble, the data. One key is public (available to others to use when communicating with you), and one is private (used only by you). You can make public keys easily accessible by storing them on specific Internet servers.



Securing a File If Fred wants to send secure mail to Susan, he needs to scramble it with Susan's public key. She would then use her private key to unscramble it. That way, only Susan can read it.

Authenticating a File If Fred wants to send mail to Susan that she can be sure came from him, he needs to scramble it with his own private key. Susan would then unscramble it with Fred's public key. That way, she knows that only Fred could have created it.

but that's the general idea. (PGP handles all of that math.) If you want to learn more about the encryption process, the PGP documentation goes into further detail. For additional reading, check out *PGP: Pretty Good Privacy*, by Simon Garfinkel (O'Reilly & Associates, 1995; \$24.95), and *Protect Your Privacy*, by William Stallings (Prentice-Hall, 1995; \$19.95).

Other Options

You can use any Macintosh application that can encrypt files to create secure files to send via electronic mail—for example, Kent Marsh's FolderBolt (713/522-5625, \$129); usrEZ Software's ultraSecure (714/756-5140, \$239); or the "encrypt" feature in Symantec's Norton Utilities for Macintosh (503/334-6054, \$149.95). The only difference is that both you and the recipient have to share a secret key; this is different from PGP's concept of public and private keys. You encrypt the file using the shared key and attach the file to your E-mail message. At the other end, the recipient uses the shared key to decrypt your file.

If you don't want to worry about whether the recipient has a copy of your encryption program, consider Kent Marsh's alternative FolderBolt Pro (\$159). Though it was designed primarily as a security application for a single Macintosh, you can use FolderBolt Pro to send secure electronic files (or to secure floppy disks). Like any security program, it allows you to encrypt a file before sending it, and the recipient has to decrypt it before reading it. But in this case, the recipient doesn't need a copy of FolderBolt Pro. You can create self-decrypting files (similar to the self-expanding files of

Aladdin Systems' StuffIt products). The recipient simply double-clicks on the encrypted file, and it decrypts itself—assuming that the recipient knows the secret key, of course. FolderBolt Pro comes with several different encryption algorithms—some strong but slow and others weak but fast. Choose the one that best fits your needs.

The Last Word

Don't send another E-mail message before you at least start thinking about security. Encryption is kind of like insurance—it's something you must have, but

hope you never need. If you make encryption a habit by incorporating it into your E-mail routine, you won't have to worry that one day your credit card number—or even your rantings about someone you dislike—will end up in an embarrassingly public forum. **m**

Last Month: Macworld's "Internet Essentials" special report helped you connect to the Internet and pick the best Web browser.

Security consultant BRUCE SCHNEIER is the author of *E-Mail Security* (John Wiley & Sons, 1995) and *Protect Your Macintosh* (Peachpit Press, 1994).

Ten Tips for Internet Privacy

- 1 Choose a pass *phrase* (not just a password) that is hard to guess. Don't use English words. The best pass phrases contain nonalphanumeric characters and both upper- and lowercase letters (like CHAnel #5).
- 2 Change your pass phrase regularly. Don't use the same one on multiple accounts. Don't store your pass phrase in your Internet account. And don't share it or write it down. If you accidentally reveal your pass phrase, change it immediately.
- 3 If you use Telnet's remote-access capability to get to your Internet account from a public place (for example, at a conference), change your pass phrase as soon as is practical afterward.
- 4 Don't give out personal information to strangers on the Internet.
- 5 Don't save sensitive files in your Internet account.
- 6 Remember that electronic-mail messages are like postcards. Do not use unencrypted E-mail to send, receive, or store any messages you want to keep private.
- 7 Think of E-mail as a shared file system. Assume that messages sent, received, or stored are available for review by authorized personnel.
- 8 Don't walk away from your computer with your E-mail window open.
- 9 Review your electronic-messages carefully before you send them. E-mail may feel like voice conversation, but messages can be saved to keep records of your words. Don't say anything you may regret later.
- 10 Don't send your credit card number unencrypted over E-mail.

Sure, he hears a different drummer. But make no mistake, he knows when to go with the flow. His computer? Power Mac. His software? New SoftWindows 2.0. Now he really has it all. He can run every Macintosh, Windows, and DOS application under the sun. Yes, he's definitely out there. But to us, he's 100% compatible.



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Relax. Now you can run every Windows and DOS application, right on your Power Mac, just like our

floating friend here. Thanks to new SoftWindows 2.0 for Power Macintosh, the software that adds enhanced 486 power to your Power Mac. Yes, the world is your oyster, and here's the pearl. You'll be able to choose from an entire world of PC software. And

**New SoftWindows
Version 2.0**



Mac OS



never have to worry about compatibility again.

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IT COULD HAPPEN TO YOU: an employee sits down at a Mac, copies folders full of your company's documents from the network server, and takes them home on floppy disks. That night, the employee opens the documents and learns all about the company's finances and product-marketing plans. A few days later, your competitors buy this information for a sum that makes the employee's salary pale by comparison.

This sort of behavior is more than fodder for pulp novels. It is a genuine danger, and if you own or manage a business, you may confront it someday.

To avert this sort of mischief, some of the most popular Mac productivity programs let you password-protect your documents against an employee with an ax to grind, someone trying to tamper with a database, or just the office gossip looking for dirt about the latest personnel imbroglio.

Such password protection is generally easy to use, but just how well does it secure your documents? Can anyone armed with a file resource editor or a debugger unscramble your "protected" documents and get at your secrets?

The Protection Racket

To test how robust productivity programs' built-in security features are, we created typical business documents in eight of the most popular Mac programs: ACI's 4th Dimension, Adobe's Acrobat, Claris's FileMaker Pro, Dantz Development's Retrospect, Intuit's Quicken, Microsoft's Excel and Word, and Novell's WordPerfect.

Applications can protect their documents in two ways; some programs offer both methods (see the table "How Tough Is Your Productivity Software?"). Most applications let you set up a password to keep snoopers out or to let colleagues read but not alter documents. Some applications can also encrypt documents—scrambling data so it cannot be read.

The Tools of the Trade

To test the integrity of these programs' protection schemes, we searched for an application programmer—not someone skilled at cryptography, but someone who knows his or her way around Mac programming and understands how the Mac manages files. We figured that an em-

ployee with this training would present a plausible threat to any organization.

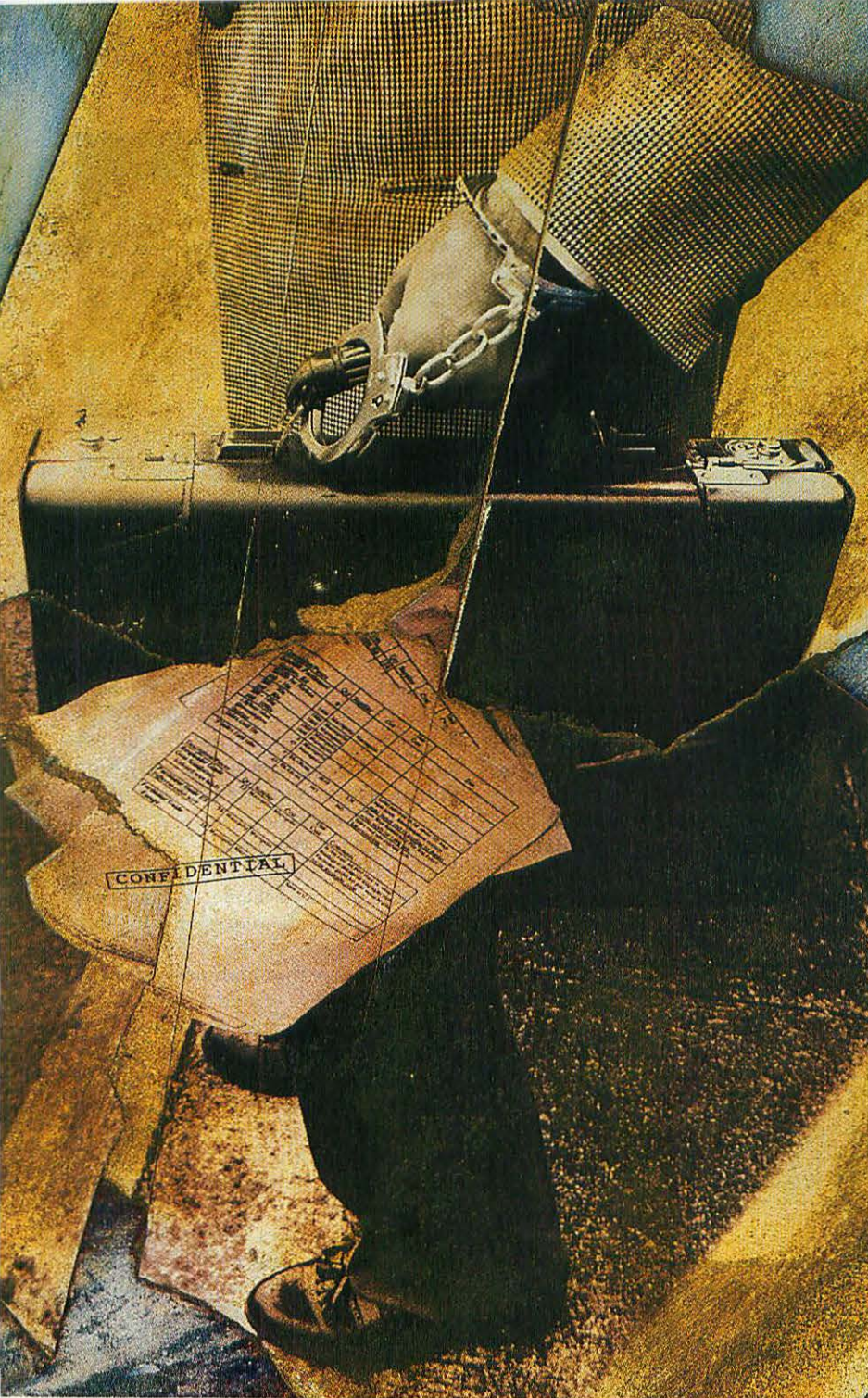
We recruited Dave Heller, a skilled commercial programmer who calls himself an "experienced amateur" on security-programming issues. Heller, who is coauthor of Symantec's Norton Disk-Doubler Pro and of the System Info module in Norton Utilities, points out that his inability to crack some of the programs is no guarantee that those programs are bulletproof. Heller employed three file-analysis techniques to locate passwords and open our documents.

The first decoding technique involved comparing two documents to discover how files change when you assign passwords to them. Some protection schemes are remarkably alike: they store a password in a fixed location in a file. To find it, you just create two blank documents, give each a different password, and look them over to see where the differences lie. To compare documents, Heller used Mathemaesthetics' Resorcerer, a

BY GENE STEINBERG

False

**THINK AGAIN ABOUT YOUR SOFTWARE'S
BUILT-IN PASSWORD PROTECTION**



standard application-development tool similar to ResEdit.

It required more skill to wield the second weapon in Heller's arsenal. This decoding routine used MacsBug (Apple's free debugger) to convince an application that the real password had been entered. The easiest way to get at a password via this method is to create a document with a known password and then analyze the application's code flow as you enter correct and incorrect passwords. In most cases the application calls a password-validation subroutine, and the code flow changes, providing the information you need to figure out how to retrieve the password.

If both those techniques failed, Heller turned again to MacsBug to reverse-engineer the application. This required a good knowledge of MacsBug and the 680X0 instruction set.

Is this something the casual user could do? Maybe not, but with *Inside Macintosh* and other widely available Mac programming books, someone with dedication and a serious interest in programming can acquire the necessary skills. Heller assured *Macworld* that all the techniques he used are fairly obvious in principle, though in practice they require different skill levels. So we're not letting any cats out of any bags here.

Wimps and Heroes

During our tests we were pleased to learn that at least some application developers had anticipated attempts to decrypt their protected files: their programs confounded Heller's best efforts to defeat password protection in a reasonable amount of time. Other programs, however, created documents that yielded their secrets in just a few minutes. And some used protection schemes that required a bit of effort to break into the first document but left subsequent documents wide open.

Let's look at each program's password-protection scheme, then find out how Heller fared in breaking it open.

HUGH SHURLEY

Security

THE SEARCH FOR BACKDOORS

AccessData of Lindon, Utah (801/224-6970), offers utilities for recovering passwords from Microsoft Excel and WordPerfect documents. This can be a blessing if you lose or forget the password to crucial documents—and a curse if someone else is trying to gain unauthorized access to your files.

Here's an equally mixed blessing: the versions that AccessData sent us were unable to open our copies of WordPerfect (3.1) and Excel (5.0a). AccessData conceded that its utilities are outdated and said that new versions are under development.

But not to worry. If you send AccessData your password-protected files, the company will recover the passwords in-house at \$50 for up to five passwords. AccessData was successful on our Excel and WordPerfect files, and it offers this service for other applications as well.

Of course, since AccessData can't be expected to investigate every request for password recovery, there is nothing to stop you from hiring the company to crack documents that belong to other people.

Quicken 5.0 The most popular personal-finance program for the Mac, Intuit's Quicken doesn't do much to protect your data from prying eyes. Heller was unsuccessful with the first technique (the one that involves finding out how files change when you add a password)—there were too many differences between two Quicken files with different passwords for Heller to find the stored password's location. But by watching how the code flow changed with valid and invalid passwords, Heller had our sample checkbook open in five minutes flat.

WordPerfect 3.1 WordPerfect provides a single level of protection—the ability to password-protect a document. It required a bit of work to figure out WordPerfect's protection scheme, but Heller's efforts met with success. WordPerfect encrypts the data inside the file, but it uses an algorithm that Heller describes as "pretty weak." To analyze an encrypted file, he filled it with a constant data pattern and then protected it with a simple alphabet password—in effect, a variation on the password-tracking method that looks at how the program's encryption modifies a file's contents. He was able to decrypt and open the first file in about an hour; subsequent files took about 30 minutes.

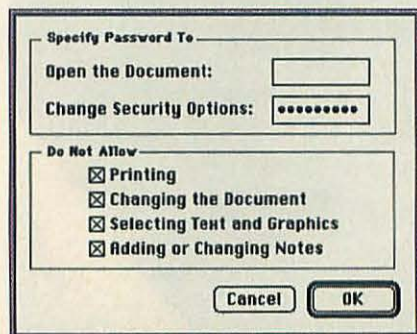
FileMaker Pro 2.1 Claris's FileMaker Pro is designed for workgroups. You can create separate passwords for each group and control each individual's, and each group's, access to all elements of a file—including the ability to design layouts; delete, edit, or export records; edit scripts; and so on.

According to Heller, databases designed to be shared—such as FileMaker Pro and 4th Dimension—don't encrypt their files' contents or structure. Otherwise, files would be encrypted differently by each user, with password keys stacked one on top of another. The files would become so secure that not even authorized users could gain access to them.

While attempting to crack FileMaker Pro, Heller found that comparing pass-

word-protected and -unprotected files didn't reveal locations for all the passwords in each file. Also, the code-flow method was only partially successful because FileMaker Pro uses the password to determine the user-access level and to verify authentication. In other words, it was relatively easy to find a password—but not to find a password for access to particular FileMaker Pro features. Heller gained read-only access to the database, but he could not access FileMaker's design module, nor could he delete records.

With further analysis, Heller determined how FileMaker Pro encrypts its



Custom Publishing Adobe Acrobat combines the encryption of file contents with robust controls over the features you make available to readers of your electronic documents.

passwords and approximately where they're stored in the file—a discovery that simplified cracking other protected files. It took Heller about two hours to open the first file, but he could then open other databases in ten minutes flat.

4th Dimension 3.2 Like FileMaker Pro, 4th Dimension (4D) provides multiple levels of password protection. You can control access to an entire database, to individual records, and to layouts and menu items. However, 4D's protection scheme isn't terribly robust.

Like FileMaker, 4D doesn't encrypt the records in a database file. Searching for where 4D stores passwords failed, but code-flow analysis was quickly successful.

Because passwords in 4D are assigned to each user instead of to each set of features, it was easy for Heller to see what entering a wrong password did to the code flow. It took him about ten minutes to get around the password-protection scheme and unlock our sample 4D database. Heller didn't attempt to modify the database's executable code, but he believes that doing so would be easy for a skilled 4D programmer working on an uncompiled database.

Excel 5.0a, Word 6.0.1 These two Microsoft applications have pretty much the same security scheme, with support for locking out all comers or providing read-only access.

Heller says that both programs encrypt the contents of a protected file, but they use a mediocre algorithm that changes documents in a predictable way. The scheme was tough enough that he could not completely crack it, though he attributes his failure to having to wade through Microsoft's cross-platform code while trying to determine the algorithm.

After 12 hours without success, Heller concluded that a skilled programmer more familiar than he is with the intricacies of Microsoft's cross-platform applications could probably develop a way to open Word and Excel documents.















Retrospect 2.1A With Retrospect, Dantz Development's popular backup program, you can choose one of three protection levels for your backup routine. The first level protects access to your backup set with a password, which Heller was able to find and disable in about half an hour.






The two encryption routines, however, were another matter. The first, SimpleCrypt, proved more durable than the encryption in Word or WordPerfect. After examining an archive created by Retrospect, Heller gave up without a fight. He didn't even attempt to tackle Retrospect's DES encryption.

Acrobat Adobe's portable-document-creation program provides one

How Tough Is Your Productivity Software?

You may be surprised to learn how readily a snoop can crack the password-protection schemes of many standard applications.

Program	Strength of Protection	Time Spent	Successfully Cracked?	Comments
4th Dimension 3.2		10 minutes *		It is impractical to encrypt a shared database; good security requires strong protection for server.
Acrobat		2 hours		Uses a very tough encryption scheme. Can block printing and copying contents of viewable files.
Excel 5.0a, Word 6.0.1		12 hours **		Programmer believes both would be more vulnerable to someone familiar with intricacies of Microsoft code.
FileMaker Pro 2.1		2 hours *		Programmer was able to view data but could not alter database structure. See 4D comments.
Quicken 5.0		5 minutes *		Content not encrypted; trapping password-analysis process proved relatively simple.
Retrospect 2.1A		30 minutes *	 ***	Provides two very tough encryption schemes, including U.S. government standard DES.
WordPerfect 3.1		1 hour *		Encrypts documents' contents, but encryption scheme was easily circumvented.

 = weak;  = strong;  = very strong;  = yes;  = no. * Includes time to learn procedure; subsequent files were opened more quickly. ** Time spent on Excel and Word together. *** Unencrypted documents only; unsuccessful with encrypted files.

password to allow access to a document, and another to change security options. These options include allowing (or not allowing) recipients to print an Acrobat document, change its contents, select text and graphics to copy to the Clipboard, and add or change notes.

When Heller examined the Acrobat files, it was clear to him that Adobe had done its homework. Acrobat uses techniques that are on a par with those of some commercial security programs, and it combines encryption with data compression. Heller, who has coauthored a commercial compression program, cheerfully admitted this combination was beyond his abilities—compression made even looking at the file almost impossible. After two hours, he gave up.

The Publishers Respond

The publishers of the programs whose documents Heller cracked didn't seem altogether surprised at the results. While some refused to talk with us, others were straightforward.

For example, when told of Heller's success in beating WordPerfect's protection scheme, Mike Tippets, business development manager for the Novell Business Applications Group, said the DOS and Windows versions of WordPerfect use the same protection routines, which are intended to deter the casual onlooker, not a sophisticated operative. Tippets recommends using a dedicated security program if you need better security than that.

At Microsoft, no one would talk on the record; off the record, company rep-

resentatives said essentially the same thing as Tippets. But at Intuit, Steve Gray, the Macintosh product manager for Quicken, suggested that his company might look into adding stronger security features in future versions of the program. Gray added, however, that Quicken's weak internal protection doesn't extend to its electronic-banking features, which offer multiple levels of password protection and encryption to protect account information. We haven't had a chance to work that claim over yet.

The Last Word

Adobe and Dantz clearly recognize the realities of

security in a workgroup situation. Both companies have incorporated encryption techniques comparable to those found in some commercial security programs. But even the documents Heller couldn't open should not be considered entirely secure. If someone wants to learn your secrets and has the necessary resources, only the strongest encryption software can protect your privacy (see the sidebar "High-Security Software"). As the saying goes: Better safe than sorry. After all, you may not realize how private your secrets are until they've become public. **m**

GENE STEINBERG is a Mac consultant and author of *Using America Online* (1995), *Special Edition Using America Online* (1995), and *Special Edition Using the Macintosh* (1994), all published by Que.

HIGH-SECURITY SOFTWARE

Not all applications offer password protection, and as you can see from this article, many that do are quite vulnerable. If you need to protect your documents, there are better options.

Many third-party disk formatters, such as Drive7 from Casa Blanca Works (\$59.95; 415/461-2227) and FWB's Hard Disk ToolKit (\$199.95; 415/325-4392), can protect an entire hard disk volume or partition. By encrypting an entire volume, these utilities make it inaccessible—if you lose your password, you have to reformat the drive. There's no backdoor.

Dedicated security programs can provide more flexibility, such as the ability to encrypt individual files. Kent Marsh's CryptoMatic (\$99; 713/522-5625) and usrEZ Software's ultraSecure (\$239; 714/756-5140) let you encrypt files. ultraSecure also offers multiple levels of user access to a disk, folder, or file. usrEZ has just published a 30-page computer-security primer; the publication shows restraint in its marketing message and is avail-

able free from usrEZ to *Macworld* readers.

Some security programs, including Symantec's DiskLock (\$129; 503/334-6054), Casady & Greene's A.M.E. (\$159; 408/484-9228), and Kent Marsh's NightWatch II (\$129), let you control a wide range of functions—for example, use of the floppy drive or the Chooser.

But before installing security software, consider the negatives. Reading a protected document or drive can require typing in one or more passwords and may slow opening and closing files. A locked disk may create problems for diagnostic software. And security programs may coexist uncomfortably, if at all, with driver-level disk-compression utilities.

Finally, what happens if you lose or forget your password? How do you recover your data? Most dedicated security programs offer a master key—a special disk that you must keep locked away somewhere... *uh*... secure.

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WORKS



VS

WORKS

Claris or Microsoft? We pick a
VICTOR in the race for best
integrated-software program.

"Whatever you need to do, ClarisWorks has everything you need," reads one box. "Microsoft Works has the right tools for all your home and school needs," reads the other. I was instantly suspicious. *Everything* I need? *All* my needs? Was I to believe that an integrated-software package—an all-in-one program with word processing, database, spreadsheet, graphics, and telecommunications modules—could do it all? Could stand alone on my hard drive?

I'd always thought these inexpensive programs were fine for simple stuff—book reports, missing-cat posters, simple BBS access—but my work requires heavy-duty features. Since I write books, I need word processor style sheets for quick formatting. I need Microsoft Word compatibility, too, since my magazine and book editors traffic in Word files. I use a database to track invoices for my writing and consulting—and I need that database to support multiple layouts of the financial data. To illustrate articles and chapters, I need a graphics program that can create

high-precision, gray-scale EPS files. So I wondered if these two historically underpowered applications had become, in their latest versions, full-featured enough to serve my needs.

There was only one way to find out. I vowed to spend one week working with Works—ClarisWorks 4.0 (\$129; Claris, 408/727-8227) and Microsoft Works 4.0 (\$99.95; Microsoft, 206/882-8080). No other software allowed. *Au revoir*, Word and Photoshop. *Arrivederci*, Excel and FileMaker. *Ciao*, Quicken and Now Up-to-Date. I was serious.

I had three goals to accomplish in this outrageous experiment. First, I wanted to see if the Claris and Microsoft claims were true. Second, I wanted to discover which Works program was better. And third, I wanted to get my work done.

MONDAY: WORD WORK

Much of my computing life is spent processing words. Monday was no exception: I had an article to revise and a stack of correspondence to dispatch.

ClarisWorks I launched ClarisWorks first. For a moment I panicked: no tool bar full of icons? How could this be a serious word processor?

But soon enough, I found the ClarisWorks word processor to be clean, well designed, and faster than any version of WordPerfect or Microsoft Word. And when I really wanted one-click access to certain commands, I opened the optional Shortcuts palette, which can be displayed in a plain-English list or as icons.

Fortunately for my editors, ClarisWorks can import and export Word 3, 4, and 5 files and many other Mac and IBM file formats (as can Microsoft Works).

Better still, ClarisWorks' quick and polished style sheets let you reformat a

by david pogue

selected paragraph with one click. ClarisWorks also provides table styles, outline styles, and even styles for draw and paint objects. Too bad ClarisWorks' style sheets don't translate into Word style sheets—a problem for my book publisher, which relies on Word styles to import text into PageMaker or QuarkXPress.

I at first pooh-poohed ClarisWorks' Library—a floating palette for storing frequently used items. How often would I really need that little clip-art kitty cat?

But several times during my day, I did need to drop my scanned signature into documents destined for the fax modem, and the Library was a perfect place to store my John Hancock, along with my logo, letterhead, and other elements.

Microsoft Works The word processor in Works is so slow that it lagged behind my typing, even on a Power Mac. (Unlike ClarisWorks, Microsoft Works doesn't work at all with Articulate Systems' Power Secretary, the voice-dictation program I often use.) It also lacks font, size, and style menus; instead, it offers cryptic little icons on a tool bar at the top of the screen (to see the icons' labels, press three keys and point with the cursor).

I did enjoy being able to drag and drop text, instead of having to copy and paste it. (In ClarisWorks, you can drag and drop only entire paragraphs.) I grew crabby, though, at Works' lack of polish. You can't hide headers or footers while you work. There's no hyphenation feature, nor any fractional-widths check box (to prevent goofy-looking boldface word spacing in printouts). And the Undo com-

mand is unavailable at times—such as after adding a new text block to a page.

TUESDAY: INTO INVOICES

I normally use Claris's FileMaker to keep track of my invoices. It works great: I type in a client's name, FileMaker retrieves the address from a second file, I input the hours I worked, and FileMaker does the math for me. I hoped to re-create such a system in my Works contenders.

ClarisWorks Creating a database in ClarisWorks, an obvious cousin to FileMaker, is straightforward (see the sidebar "Birth of a Database"). I was particularly delighted at ClarisWorks' Mac-like data entry options, such as check boxes and radio buttons.

Dragging fields into an efficient layout was simple. Defining mathematical relationships between fields (for example, $hours * rate = subtotal$) was easy, too. But creating repeating fields—which you would use when billing a client for more than one item—wasn't. While FileMaker generates repeating fields with as many rows as you need, in ClarisWorks (and

Microsoft Works) I had to define separate fields for the date, description, hours worked, rate, and subtotal for every row.

ClarisWorks owners have long coveted one excellent feature in Microsoft Works' database: its List view, a spreadsheetlike summary layout. ClarisWorks users need covet no longer: version 4.0 finally offers this convenient view.

After importing my invoice data from FileMaker, I was in business: I had layouts for data entry, faxing, and printing; I could perform complex searches and even name and save those searches for easy reuse. Although it lacks FileMaker's look-up feature, ClarisWorks provided very nearly as much power as I'd had with FileMaker—and for less effort.

Microsoft Works The Microsoft Works database hasn't improved nearly as much over the years. There are no ready-to-go layouts, as in ClarisWorks; you must create every layout from scratch, slapping each field onto the screen using a crude dialog box. You can adjust field placement and format, but the Undo command is too frequently unavailable.

WORKS: THE GOOD, THE BAD, AND THE MISSING

Are you waffling between ClarisWorks and Microsoft Works? Or are you still deciding whether to go integrated at all? Close study of the features you need is the key to making the right choice.

CLARISWORKS EXCLUSIVES

ClarisWorks gives you some features that Microsoft Works can't touch.

ALL APPROPRIATE MODULES

- AppleScript support
- Full balloon help
- Style sheets
- Zoom in/zoom out

DATABASE

- Picture field

SPREADSHEET

- Adjustable row width and column height

- Text wrap in cells

WORD PROCESSOR

- Automatic hyphenation
- Hide/show margins option
- Outlining
- Sections

MICROSOFT WORKS EXCLUSIVES

Microsoft Works has a few exclusive features and even some modules not in ClarisWorks.

ALL APPROPRIATE MODULES

- Reminders

GRAPHICS

- Adobe Photoshop plug-ins
- Thumbnail view for sorting slides

SPREADSHEET

- Drag and drop

TELECOMMUNICATIONS

- Zmodem support

WORD PROCESSOR

- Drag and drop

OTHER

- Calendar
- Equation editor
- Microsoft Bookshelf
- To-do list
- Word Art typographical effects

APPROACHING THE HIGH END

Both ClarisWorks and Microsoft Works give you hundreds of advanced features you might not expect in an integrated program. Here are some examples common to both programs.

ALL APPROPRIATE MODULES

- Illustrated online help
- Macros
- PowerTalk mailing
- QuickTime support

- Smart quotes

- Spelling checker

DATABASE

- Label and envelope templates

GRAPHICS

- Eyedropper and magic-wand tools

- Slide shows

SPREADSHEET

- Autosum

WORD PROCESSOR

- Footnotes
- Superscript and subscript
- Tables
- Text wrap around graphics
- Thesaurus
- Title-page option

WHAT YOU DON'T GET

Integrated programs do sacrifice useful features that are commonplace in stand-alone applications. Here are a few examples of features found in other programs that Microsoft Works and ClarisWorks lack.

- Automatic sentence capitalization (Word, WordPerfect)
- Convert upper-/lowercase (Word, WordPerfect)
- Database lookups (FileMaker)
- Edit channels (Photoshop)
- Indexing (Word, WordPerfect, PageMaker)
- Open JPEG file (Photoshop)
- Save as EPS file (FreeHand, Illustrator, Photoshop)
- Small-caps type style (Word, WordPerfect)
- System 7.5 systemwide drag and drop (Delta-Graph, WordPerfect)

Was I to believe that an integrated software program—an **ALL-IN-ONE** program with word processing, database, spreadsheet, graphics, and telecom modules—could stand alone on my hard drive? There was only one way to find out.

I couldn't assign different fonts to a field and its label. As a workaround, Microsoft suggests creating field labels as text objects—that is, manually. And there is no way to import data into an existing database; Microsoft's suggestion is to import records into a new database and then copy and paste them into the existing database.

Worst of all, to enter data in a Works database you must type it into a strip at the top of the screen, as you do in Excel. You can't paste pictures into your database. And you can't zoom in or out. Overall, Works' database feels like software for an older, less evolved computer.

WEDNESDAY: DESIGN DAY

Midweek a sudden project came up. My grandfather's 105th birthday was approaching, and my relatives asked me to design a two-page newsletter as an invitation. This would be a great opportunity to test the packages' much-hyped Assistants or Wizards, which format complex pages for you.

ClarisWorks When I selected the Newsletter Assistant from ClarisWorks' well-organized list of résumés, expense reports, certificates, and other standard documents, the program—as advertised—walked me through a series of questions: What kind of newsletter is it? How many pages long? And so on.

After I answered the questions, a newsletter template appeared with boxes for headlines and body text. Unfortunately, all were set in Helvetica (*Dulvetica*, in my book). I chose Select All and tried to apply the Palatino font to all the boxes at once. My Mac just beeped.

After I had waited far too long on the phone, Claris's technical support confirmed that I'd have to change every text block's font manually. Fortunately, I figured out how to list Palatino in the Shortcuts palette, so that a single click fixed each text block. From there, I imported the Word files for my newsletter; they flowed, PageMaker-like, into the linked text boxes of my newsletter template.

Microsoft Works Microsoft Works' Wizard was nearly identical to the ClarisWorks Assistant, but the template that Works produced looked a hundred times better. It had sharp shading, striking border graphics, and some stylish fonts I didn't even know I had (the Works installer sneaked them into my system).

Although ClarisWorks provides more kinds of Assistants, the four that Microsoft Works offers (newsletter, certificate, greeting card, and presentation) have much more impact and appeal. Works further distinguishes itself with the fantastic Word Art add-on program, which you can use to twist headlines like special-effects taffy. Works can't import one file into another, however, so filling in the

week, and month views. I was able to easily set up recurring events such as my monthly Macintosh user-group meeting, and I instructed the program to remind me of business appointments. Works even has a full-fledged to-do list. I went wild typing in all the projects I needed to get done, only to discover that none of these errands-in-waiting show up on the calendar itself. I also missed Now Up-to-Date's ability to put banners, graphics, and alternate typefaces on my calendar. Still, Microsoft Works' whole calendar/to-do feature beats the pants off ClarisWorks' anemic attempt at a calendar—a template that's little more than a spreadsheet with very large rows.

While trying to figure out where my money goes, I spent part of the day masaging numbers in spreadsheets. Considering its Excel heritage, I expected Microsoft Works to wipe the floor with ClarisWorks in the spreadsheet arena. Indeed, the essentials are all there: Works offers macros; drag and drop; a Paste Special command (which can, for example, paste values without their formulas); and Excel's beloved AutoSum button, which saves you the trouble of typing in the SUM formula.

But beyond the basics, Works' spreadsheet has surprising rough edges. For example, you can't adjust row heights

EFFICIENT WORK

HOW MUCH MAC DO CLARISWORKS AND MICROSOFT WORKS REQUIRE?

	ClarisWorks 4.0	Microsoft Works 4.0
Disk space (application only, 680X0 Mac version)	0.93MB	2.4MB
Disk space (application only, Power Mac version)	1.9MB	5.1MB
Suggested RAM (680X0 Mac version)	1.4MB	2.0MB
Suggested RAM (Power Mac version, virtual memory on)	1.4MB	2.3MB
Suggested RAM (Power Mac version, virtual memory off)	3.0MB	7.0MB

text boxes required copying and pasting—more labor than in ClarisWorks.

The page-layout capabilities of Works (as well as of ClarisWorks) could not touch the precision or typographical features of QuarkXPress or PageMaker; had my newsletter been for clients instead of family, I would have fled to a program that could at least kern headlines.

THURSDAY: BUSINESS PLANS

Enough with birthday newsletters: it was time to put my own accounts in order. I had been nervous about abandoning my calendar and finance programs, Now Up-to-Date and Quicken, but once again the promotional literature for both Works programs assured me I'd be all set.

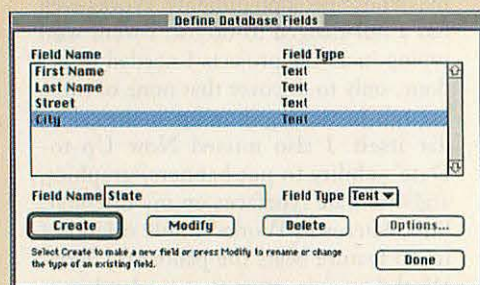
Microsoft Works Works impressed me with a calendar program featuring day,

or column widths. You can't wrap text within a cell. The program refuses to create a chart if you are using the split-screen feature. And—the real shocker—even in version 4.0 you can use only one font and type size for the entire spreadsheet.

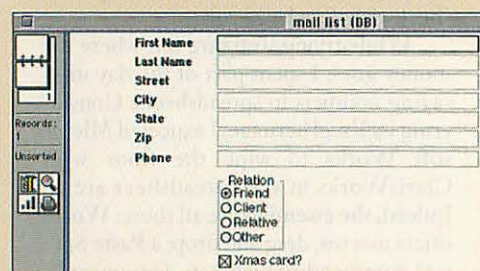
ClarisWorks While ClarisWorks' calendar is a complete flop, its financial-management capability is a winner. One of the most distressing worries of my Works-only week was giving up Quicken. But the ClarisWorks checkbook-register template, a cleverly designed database, turned out to have almost everything I needed. You input expenses on a screen that looks like a blank check, and you record income on a screen that resembles a deposit slip. A third screen is your checkbook register, complete with a check box to indicate that a check has

BIRTH OF A DATABASE

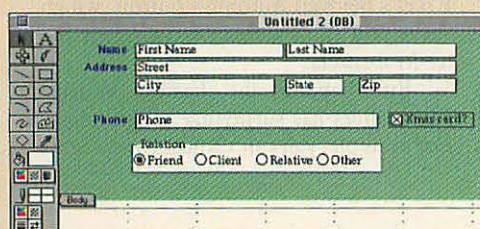
HOW DOES THE WORKLOAD COMPARE FOR CREATING A QUICK DATABASE IN CLARISWORKS AND IN MICROSOFT WORKS?



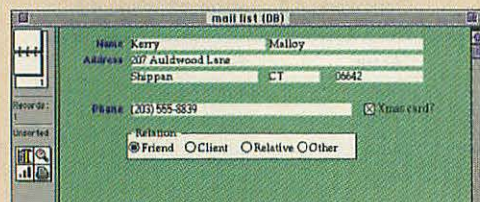
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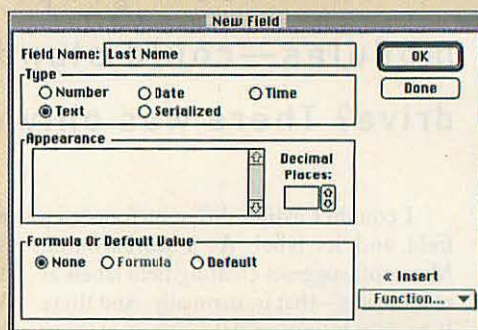
CLARISWORKS

1 Beginning in Database mode, type the name of each field and click on the Create button. The fields appear in a list. When you've defined all your fields, click on Done.

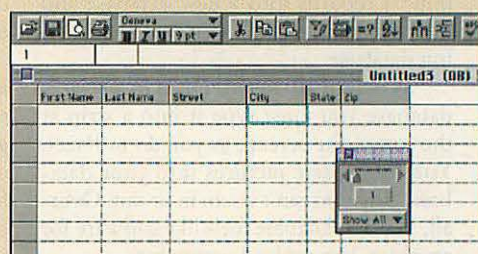
2 ClarisWorks automatically produces a data-entry layout and switches to Browse mode. You can start entering data right away.

3 To modify the form appearance or to add headers, footers, and subsummaries, go to the Layout mode.

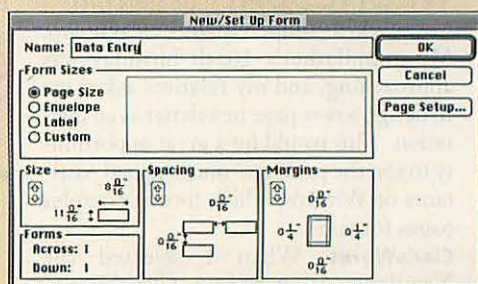
4 When you switch back to Browse mode, all the changes appear on records you previously created, if any, and the database is ready for more records.



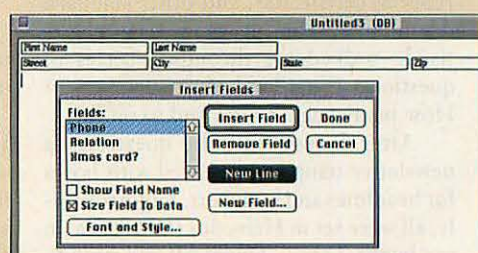
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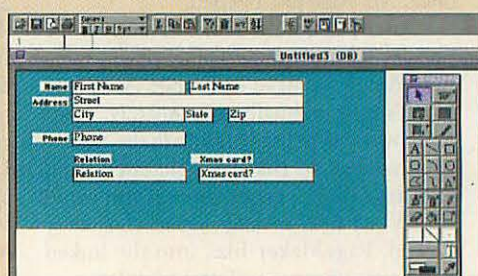
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3



4



5

MICROSOFT WORKS

1 Creating a new database in Works is similar to doing so in ClarisWorks, except that you can't see the list of fields as you define them, and creating a data-entry form can be a lot of extra work.

2 When you've finished defining the fields, Works automatically creates a list view and asks if you want to create a form—the advantage of a form is that you can arrange where fields appear, instead of working in a spreadsheet-like list view.

3 Works asks you to name the form and decide whether it's a full-page report, an envelope or label, or a custom design.

4 To produce the form, you must choose, one at a time, each field that you want to appear on it. Works places the fields in a row, even for labels, envelopes, or other standard-size forms, so that you must lay them out manually. ClarisWorks, by contrast, arranges fields appropriately on labels and envelopes.

5 After the fields appear on the form, you can use Works' design tools to arrange the fields and customize the form's look. Now you're ready to switch back to Data view and enter information.

I missed America Online, and I missed Myst, and I couldn't do my graphics tasks. **BUT OTHERWISE.** I got along pretty darn well with just Microsoft Works and ClarisWorks. You simply can't buy more productivity features per dollar.

cleared. Other layouts are ready-made reports, such as a category breakdown. (Like ClarisWorks, Microsoft Works includes dozens of predesigned financial forms—expense reports, a mortgage worksheet, and so on—but no day-to-day checkbook manager.)

The ClarisWorks spreadsheet is much more polished than Microsoft Works'; it offers the same features without the clunky limitations. It even has an Excel-like auto-fill function that generates cell contents based on a pattern (like "January, February, March . . .", or "2:00 p.m., 2:15 p.m., 2:30 p.m. . ."). ClarisWorks' charts also put its competitor's to shame, with twice as many chart types and attractive shadow and 3-D styles.

FRIDAY: ARTWORK

A client needed my help to design the brochure for a shampoo he is marketing. I persuaded him to let me give the project a shot using my integrated programs. This would be a test of graphics features: the scanned photo of the shampoo bottles badly needed touching up, and I needed drawing tools to work on the graphic design.

Microsoft Works As I started to retouch the scan, I got excited. Works' Photoshop-like menu commands include Brightness, Contrast, Sharpen, Blur, Grayscale, and Emboss. It even accepts Photoshop plug-ins.

I opened the 3-inch-square scan file (slowly—it took 58 seconds on my Power Mac) and discovered a design flaw: those tantalizing paint commands don't work on images that are pasted or imported into the graphics window—you must draw a blank paint box to contain them before bringing them in.

ClarisWorks ClarisWorks easily imports 24-bit TIFF and PICT files—it imported my scan in 3 seconds—it just can't do much with them. Its simple paint menu offers only very basic commands such as Lighter, Darker, and Invert. With both programs falling down in the image-editing arena, I was forced to

break my vow of software fidelity: I launched Photoshop.

To finish the shampoo brochure, I needed object-oriented draw tools. They're excellent in both programs—way beyond ho-hum line, circle, and rectangle tools. They both provide a freehand tool, 3-D polygon tools, color blends in any direction, and so on. But once again, both Works programs thwarted me: neither could save my finished brochure as an EPS file—and my service bureau complains bitterly when given PICT files, which sometimes choke its imagesetter. So I violated my software vows for the second time that day, and turned to Free-Hand to finish the job.

My last task for the week was to send the shampoo brochure design to my client—electronically, of course. Within 30 minutes, I had taught both Works' communications modules to dial CompuServe and enter my user number and password. Had I gone modem-to-modem with my client instead of using CompuServe, I would have preferred Microsoft Works; unlike ClarisWorks, it offers the Zmodem file-transfer protocol, which is smart enough to pick up again where it leaves off if a file transfer is interrupted. Otherwise, the communications features are identical in both programs—and nothing to modem home about.

THE LAST WORD

I missed America Online, and I missed Myst, and I couldn't do my graphics tasks. But otherwise, I got along pretty darn well with just Microsoft Works and ClarisWorks. You simply can't buy more productivity features per dollar. At \$99.95, Microsoft Works in particular is the value king, providing much more *stuff* than ClarisWorks for \$30 less. For the same \$99.95, the CD-ROM version of Works includes Microsoft Bookshelf, with the complete text of seven reference books; within Works, you can highlight a word and instantly view its dictionary or encyclopedia entry. OK, not *instantly*; there's actually about 90 seconds of heav-

ing and whirring while Works launches Bookshelf.

But if economy were the only thing that mattered in life, we'd all be driving Yugos. Sleekness counts, especially in programs intended for less powerful machines. Microsoft Works is a behemoth. In some cases it requires more than twice the RAM and disk space of the nimble ClarisWorks (see the table "Efficient Work"). And that's just for the application, without extras—the calendar, Word Art module, and equation editor are separate programs, for example. Troubleshooters take note: Works also installs six extensions in your System Folder.

ClarisWorks' features aren't just better integrated, they're also better executed. The program is filled with pleasing touches: the zoom-in and zoom-out features work everywhere, not just with graphics and word processing (as in Works), and an outline can appear anywhere, in any document, with any numbering style (Works doesn't do outlining).

Claris provides all of this in a program whose recommended RAM requirement is 1400K. Furthermore, the ClarisWorks application takes up 1.9MB of disk space on a Power Mac—a fraction of Microsoft Works' 5.1MB. Yes, ClarisWorks costs \$30 more than Works—but memory and hard drives cost something, too.

After a week of using two integrated programs, I came up with one of my own for the weekend—an integrated program of biking, seeing movies, and meeting friends. **m**

Contributing editor DAVID POGUE is the author of *Macworld Mac FAQs: Answers to the Most Frequently Asked Questions* (IDG Books Worldwide, 1995).

INTEGRATED SOFTWARE PACKAGE



What counts for integrated software, more than for any other kind, is a deep feature set that doesn't compromise ease of use.

ClarisWorks 4.0 To ease of use and depth of features ClarisWorks adds good integration, clean design, and speed. If you're ever marooned on a desert island with your PowerBook and one program, just hope that the program is ClarisWorks.
Company: Claris. **Company's estimated price:** \$129.

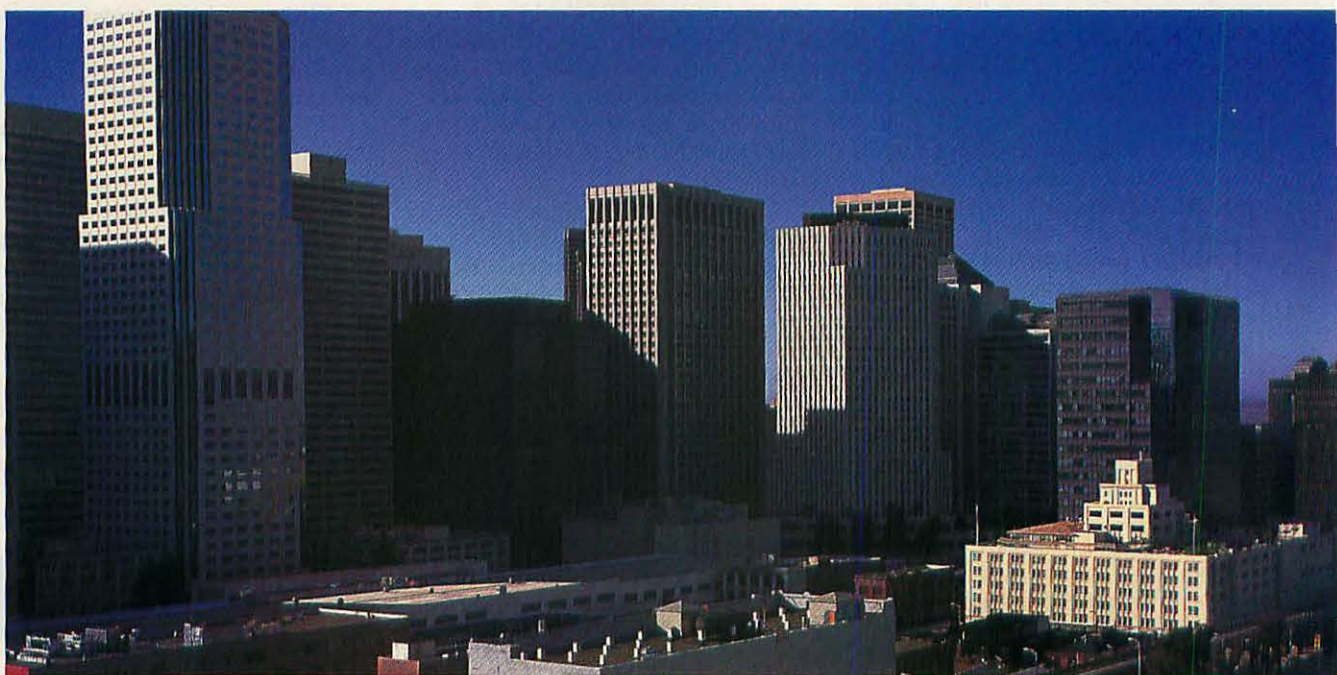
You have a concept for a killer new video game

that has reached the ears of some venture capitalists. Now you have to reach their eyes.

You grab some location footage and plug your camcorder into the back of your Power Mac."

You add in your engineer's 3-D rendering of an amphibious

You add in your



For more information, visit us on the Internet at <http://www.apple.com>.

ENTERED BY KATHY ARZT

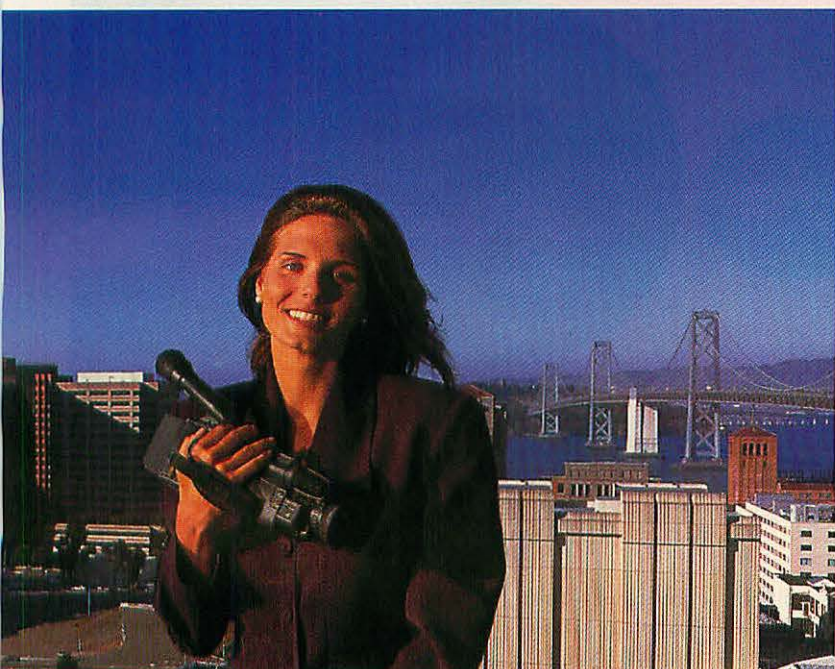
helicopter for intrigue.

composer's futuristic sound design for interest.

You add in your illustrator's animated demo of a Venusian getting vaporized for impact.

You add up your accountant's estimate of your first-year's royalties for kicks.

That's when it crosses your mind.




It's not how powerful
the computer is.

604 PowerPC® RISC chip,
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EDITED BY CATHY ABES

Graphics

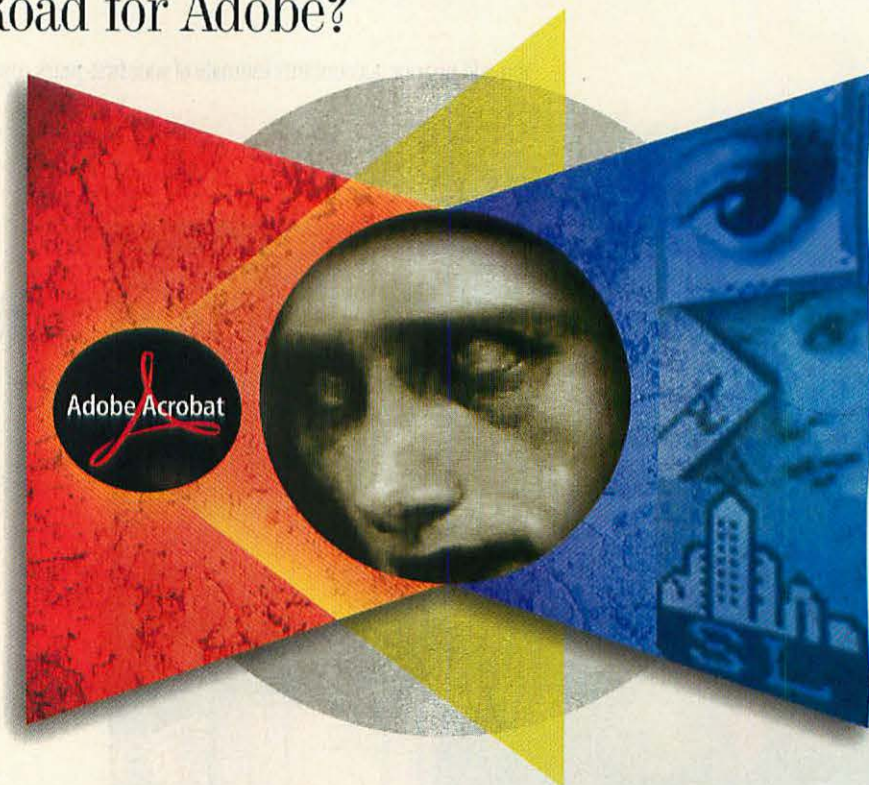
THE LATEST IN DESIGN, PUBLISHING, AND PREPRESS

What's Down the Road for Adobe?

ONE OF ADOBE'S TOP PRIORITIES IS strengthening integration between all of its major products, says John Kunze, vice president of product marketing. As new versions are released, you can expect to see user-interface consistency, such as tab palettes (a Photoshop 3.0 feature) and drag-and-drop capability between all products. Another goal is an extensible color-management system to produce consistent-looking images and PostScript Level 2 output across all products. Adobe is moving toward a single graphics engine that would allow all its products to render PostScript graphics to screen; for example, an Illustrator file dragged into PageMaker would look exactly the same as in Illustrator, and you could zoom in on the image and easily position it.

Another area ripe for integration is plug-in technology. There are currently about seven or eight extensible architectures. Adobe is working to standardize these architectures across its graphics products, and the next major version of each product should include a new common-extensibility architecture.

As a result, future versions of Adobe and third-party filters will work in Photoshop, Illustrator, PageMaker, and Premiere, and will be smart enough to adjust to whichever program they're being run in. Adobe has already begun moving in that direction by enabling PageMaker 6 to run Photoshop plug-ins—a capability the next version of Illustrator will have as well. The current batch of plug-ins will be upwardly compatible, working with later versions of PageMaker and Illustrator just as they did with Photoshop, while the new and updated plug-ins will be able to take advantage of all the updated programs' new features. According to Kunze, we can expect much of this—including full cross-platform support—to happen sometime next year.



After two major acquisitions—first Aldus and now Frame Technology, whose FrameMaker software is designed for publishing technical documents—Adobe seems poised to become the prime force in graphics and desktop publishing. And while the company claims to be as strongly committed as ever to its high-end graphics applications, it's also exploring ways of delivering its core technologies to a broader market. Most notable among these is Acrobat, its portable-document technology, which Adobe is promoting as a standard for online publishing.

Adobe president Chuck Geshke sees the Frame acquisition as a means of making further inroads into this market because of FrameMaker's support of HTML and Acrobat's PDF format. Adobe is also working closely with sever-

al vendors that plan to introduce image-display devices—by late this year or early next—that can easily produce multimedia presentations from PDF files. These include Aproxima and InFocus, overhead-projector makers, and Trimble Navigation, which produces navigation devices for cars, ships, and aircraft.

Although both Geshke and Kunze claim that Adobe remains focused on its applications, others close to the company say that for some time resources have been drained away from applications and funneled into Acrobat. One source claims, for example, that roughly the same number of engineers have been dedicated solely to Acrobat as work on Photoshop, Illustrator, Premiere, and Dimensions combined—a situation that likely contributed to the departure of a number of program-

JOHN RITTER

mers (most notably, for Photoshop) in the past year.

What effect this situation will have on Photoshop remains to be seen. When asked about it—especially in light of competing applications such as Live Picture,

xRes, and the forthcoming QuarkXPress—Kunze would say only that Adobe is exploring various technologies to combat Photoshop's problems in working effectively with large files, and expects to resolve them in the next version.—C.A.

FreeHand's Fast on the Draw

IN ITS CONTINUING BATTLE AGAINST Adobe Illustrator, Macromedia is mobilizing to release FreeHand 5.5 ahead of its main competitor's next version. Beyond enhanced performance (which Macromedia claims ranges between 5 and 200 percent), FreeHand will offer greater compatibility with Adobe products such as Photoshop and Acrobat.

Although Macromedia version 5.5 is optimized for Power Macs, the company claims that most of the speed gains apply to 680X0 Macs as well. One of FreeHand 5.5's most useful new features is compatibility with third-party plug-ins for Photoshop. And the program's ability to access the huge list of file formats that Photoshop can, should minimize the need to shuttle between applications to make minor image adjustments.

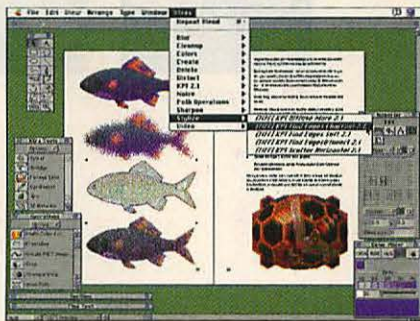
Other examples of extended compatibility include FreeHand's ability to read Acrobat PDF files and its new Export to Photoshop command, which combines the Illustrator 88 format for text with the Illustrator 3 format for graphics to produce the best-quality results.

FreeHand can now acquire scanned

images directly, and its ability to edit TIFF files lets you perform such tasks as sharpening and color correcting. You'll also be able to retrieve TIFFs embedded in FreeHand files for further editing.

The new Element Renderer will let you create antialiased bitmaps for multimedia and online output.

Scheduled to ship in late September with 500 TrueType and Type 1 fonts and over 10,000 clip-art images, FreeHand will maintain its retail price of \$595 (5.0 users can upgrade for \$79; owners of previous versions, for \$149).—C.A.

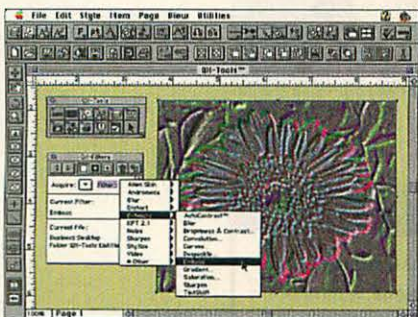


You can apply third-party Photoshop filters, such as Kai's Power Tools, to FreeHand 5.5 objects.

Extending QuarkXPress

TWO NEW SETS OF XTENSIONS PLUS a stand-alone utility will make it easier to prepare QuarkXPress files for final output, provide enhanced compatibility with other programs, and allow users to customize their work environment.

Extensis (503/274-2020), maker of



QX-Filters, part of Extensis's QX-Tools, lets you apply Photoshop filters such as Emboss to images within QuarkXPress.

PageTools additions for Adobe PageMaker, is shipping QX-Tools, a \$149 set of utilities and resizable floating palettes designed to handle a variety of needs. QX-Bars are multiple customizable tool bars that provide predefined buttons for quickly accessing any QuarkXPress command; they also let you create custom buttons for such tasks as opening files, launching XTensions, and executing key commands. QX-Print allows you to print noncontiguous page ranges, print spot colors as process colors, print multiple plates in one step, and save a selected area as an EPS file. And QX-Manager lets you create and save sets of XTensions to turn on or off automatically when QuarkXPress launches.

The QX-Tools palettes include QX-Layers, a floating palette that lets you assign objects to layers so they can be hidden or reordered for easy manipulation;

IN BRIEF

■ **One Source for Add-ons**
Publishers and artists can now find a wide range of application extensions, all from a single source. World-Wide Power (303/940-0600) sells Photoshop-compatible plug-ins, filters for Adobe Illustrator and Macromedia FreeHand, QuarkXTensions, and Adobe PageMaker Additions. To supplement its Denver-based BBS, from which users can download software and get technical support, the company is currently developing a World Wide Web site that will offer similar services.

● **Plug-in Manager**
Be-Infinite (404/552-6624), maker of the Illustrator filter set Infinite FX, is introducing a Power Macintosh-native organizational tool for Adobe Photoshop plug-ins. Due to ship in September, PlugInfinite (\$79) lets you move around and rename third-party plug-ins. You can change the name of the menu they appear in, as well as the name of the plug-in itself.

QX-Scaler, which lets you resize multiple objects simultaneously; QX-Filters, for running Photoshop-compatible filters in QuarkXPress; QX-Viewer, for displaying previews of pages and quickly navigating a document; and QX-Styles, for creating and applying character styles.

Markzware is shipping FlightCheck, a stand-alone application that lets you check all the attributes of your Quark (as well as PageMaker and Illustrator) files to make sure they're properly prepared before sending them to film, press, or direct to plate. With the \$249 FlightCheck, you can see how many pages and spreads your file contains, along with its page dimensions, bleeds and registration marks, fonts, style sheets, and color and trapping information. In addition, FlightCheck tells you the application version that created the file, as well as its resolution, mode, scale, and rotation.

Also shipping is MarkzToolsII, a \$99 XTension that allows you to open QuarkXPress 3.3 files in versions 3.1 and 3.2. When used with Markzware's PM-QXP module (\$79 separately; \$49 with MarkzTools II), this extension lets you open PageMaker 4.2 and 5.0 documents and compress and decompress documents within Quark.—C.A.

Expert Graphics

GRAPHICS PROFESSIONALS SHARE THEIR SECRETS

by Cathy Abes

Artist: New York-based illustrator Marc Yankus switched from traditional to digital media when he bought his first Mac and Adobe Photoshop 1.0 in 1990. Lately he's been experimenting with animation and video using After Effects and SoundEdit 16. A sample of his imagery can be seen in Word Magazine, an interactive magazine on the World Wide Web at <http://www.word.com/>.

How It Was Done: Yankus created this image—about a young woman making a videotape about her grandmother—for *American Way*, the in-flight magazine of American Airlines. One of a growing number of artists who make a point of using only their own photography in illustrations, Yankus began by shooting seven separate photos that he could composite into a finished piece. He had them converted to Kodak Photo CD format, which gave him higher-resolution images than he could have produced with his own scanner.

To create the textured background in the upper-right area, Yankus scaled up a photo of trees reflected in a window until it filled the entire canvas.

To separate the flowers from the extraneous elements around them, he first dragged each flower image onto its own layer and added a layer mask. Using the paintbrush set to black at 100 percent opacity, he painted away the background, leaving only the flower visible.

After applying Photoshop's Lighting Effects filter to the photo of the man, Yankus dragged it into the main illustration. To make the photo appear to be falling into the tulip, he applied the Spherize filter at -29 percent, then rotated it with the Perspective tool.

After using Lighting Effects in the grandmother's photo, Yankus created the look of a video frame by pasting a series of horizontal lines across the photo, typing the word *record* in the lower-right corner, and simulating the viewfinder crop marks.

When all the elements were in place, Yankus flattened the various layers of the illustration into one and applied Lighting Effects to the entire image. **m**



1 The photo Yankus shot of trees reflected in a window.



2 A portion of the reflection photo after he scaled it up to fill the entire canvas.



3 The original photo of the open tulip, before he flipped it and painted away the extraneous background elements.



4 The original photo of the young filmmaker.

THE TOOLS

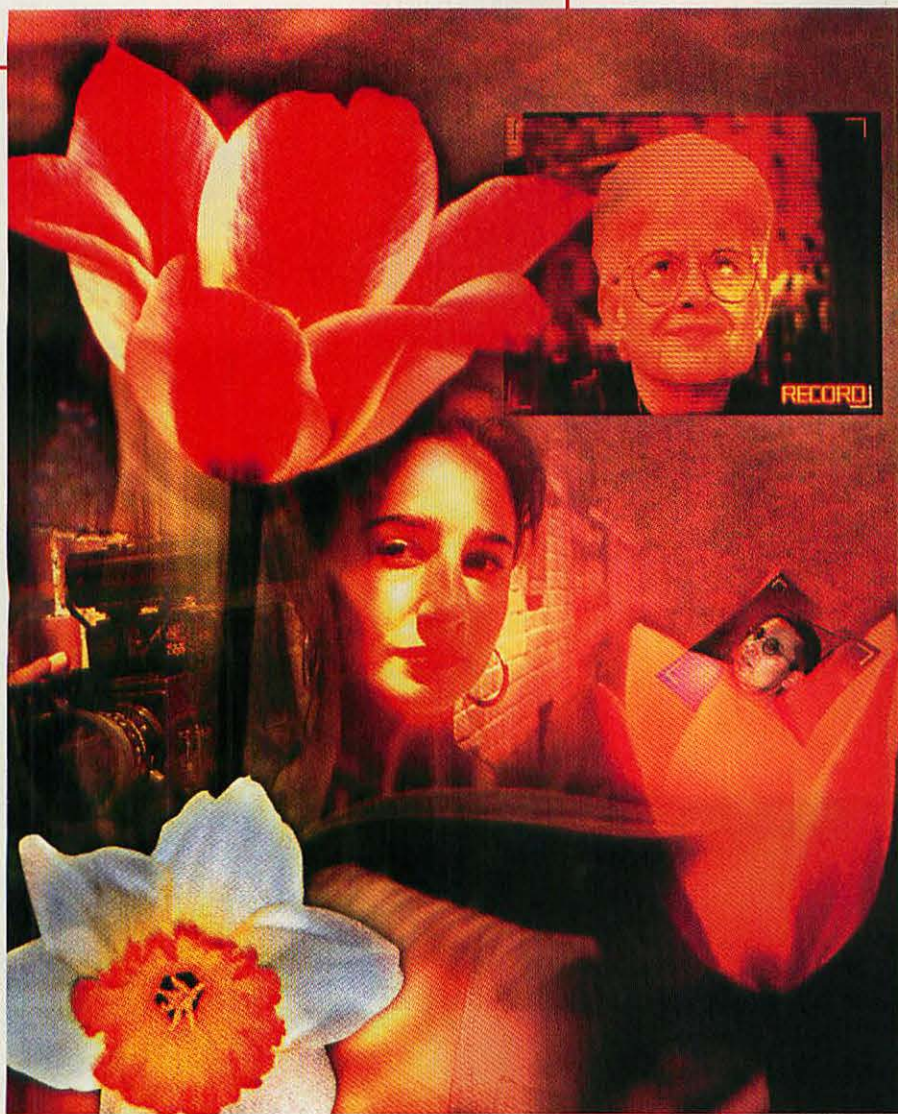
Hardware: Power Mac 8100/80 with 106MB of RAM (97MB devoted to Photoshop) and 1GB internal hard drive; Seagate Barracuda 4 8GB disk array; 19-inch SuperMac monitor; 17-inch SuperMac Super-Match monitor; external NEC MultiSpin double-speed CD-ROM drive.
Software: Adobe Photoshop 3.01.



7 The original photo of the grandmother.



8 Yankus applied Lighting Effects to the photo of the grandmother, which deepened her flesh tones to yellow-gold to give the illusion of sunlight coloring her face.

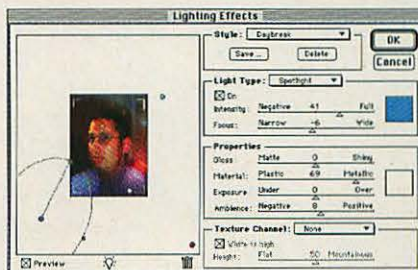


9 The composite illustration after all the elements were added but before Yankus applied Lighting Effects to the entire image.

5 The original photo of the man before Yankus altered it with Photoshop's Lighting Effects filter (Filter > Render).

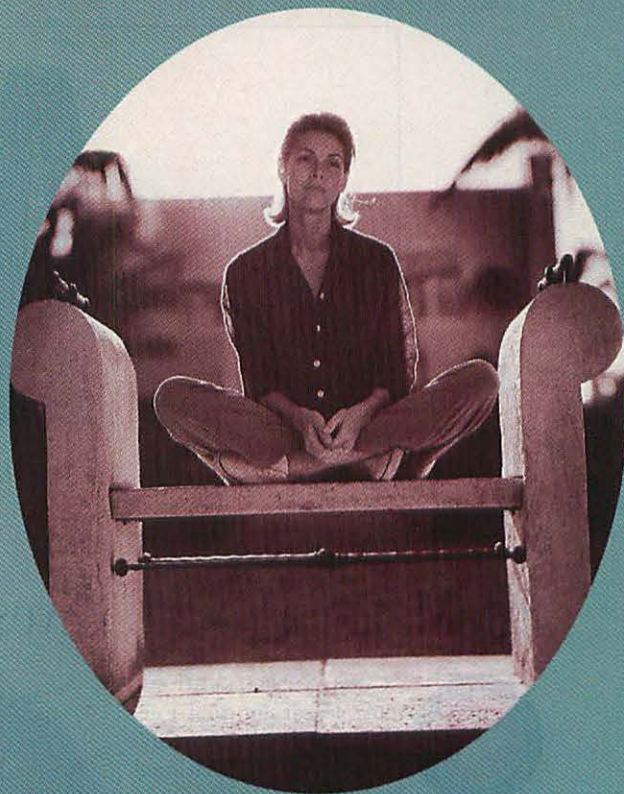


6 The Lighting Effects dialog box, showing one of the four groups of settings Yankus applied to the photo before incorporating it into the main illustration.



in
here
mistakes
a r e
forgiven

Y You are on
O Your Power Mac™
H You are in
A Microsoft® Word 6.0.1.
V Your mind
E Is racing.
A Your fingers
J Are racing
O To keep up
B With your thoughts.
T
O
D
O



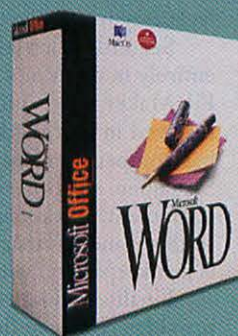
Y You begin
O A new sentence
U With
W A lowercase letter.
R This mistake is corrected
I Automatically.
T
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Y Knowing there are
O 100 levels
U Of Undo.
R And 100 levels
E Of Redo.
V Just in case.
I
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Y You begin a new
O Sentence with
U An abbreviation
W You created.
R It becomes
I An entire phrase.
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U You change
R Margins
E Typefaces
V And words.
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Y Until you have finished.
O You click AutoFormat.
U And the block of words
W Can become
R A letter.
I A proposal.
T A story.
E Automatically.
E You write. Because you can.



Microsoft

WHERE DO YOU WANT TO GO TODAY?™

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At Work

THE LATEST TOOLS FOR BUSINESS COMPUTING

FileMaker Pro 3.0 Gives Gentle Ride to Relational World



CLARIS ANNOUNCED AL-
most a year ago that File-
Maker Pro would evolve
from flat-file to relational.

Only now has Claris re-
vealed details about the new product,
scheduled to ship in December as File-
Maker Pro 3.0. Why—at the dual risk of
scaring away unsophisticated users and
being ridiculed by 4D, FoxPro, and
Omnis sophisticates—is Claris going rela-
tional? That question has several answers.

First, Claris asserts that FileMaker
Pro 3.0 breaks with relational-database
tradition in an important way: you don't
have to be a programmer to use it. Based
on my two-hour examination of an in-
complete beta, this actually seems like an
accurate description instead of a market-
ing hype-balloon. In fact, while version
3.0 sports some new scripting capabilities,
there is no underlying programming lan-
guage of the 4D, FoxPro, or Omnis vari-
ety—anyone who is comfortable creating
lookups in FileMaker today will be able to
slap together relations, while other users
will barely notice the upgrade, because it
feels very much like the current version.

Second, FileMaker no longer lives
entirely in the Mac's peaceable kingdom.
FileMaker for Windows has been well
received in that market, but there Claris
has competition from Lotus, Microsoft,
Symantec, and other strong vendors with
competent, accessible database managers.
In the Windows market, going relational
is just keeping up with the Joneses.

Finally, adding relational capabilities
provides real benefits. It eliminates re-
dundant data, and more important, rela-
tions between tables allow you to do
things you simply can't do with a flat-file
database. For example, to add multiple
instances of a field—such as the names of
four people assigned to a project—to a
layout in FileMaker 2.1, you had to cre-



JOHN BLECK

ate multiple Name fields (or a Repeating
field for circumstances such as invoice line
items), but version 3.0 has a new layout
object called Portal that can show multi-
ple pieces of data from a single relation.

Claris says FileMaker Pro 3.0 will
convert version 2.1 files, including scripts,
without tweaking. Lookups from 2.1 will
be imported as lookups—version 3.0 sup-
ports both lookups and relations in the
same file; you must decide where relations
are preferable to lookups and convert
them manually. To create one-to-many
and many-to-one relations, you select
field names from pop-up lists—similar to
creating a lookup in 2.1. Many-to-many
relations are created through an interme-
diate file. Other changes include support
for the TCP/IP network protocol; loops,
conditionals, variables, and advanced en-

vironment controls in the scripting com-
mands; the ability to handle much larger
files (at press time Claris did not have exact
specs); and a new one-step Button tool.

FileMaker Pro 3.0 will be the first
Power Mac-native version of the pro-
gram—why Apple allowed this strategic
program to linger so long as a 680X0 app
is puzzling. The FileMaker server will
also be native and upgraded to 3.0 capa-
bilities. Pricing was not set at press time.
For 1996, Claris is preparing a Newton
version of FileMaker Pro 3.0. Users will
be able to download layouts created on a
desktop machine, as well as selected
records. The Newton version will support
data synchronization between desktop
and PDA, and users will be able to enter
data on the Newton for transfer back to a
desktop machine.—DAN LITTMAN

Sneak Peek: New Newton OS

APPARENTLY, YOU CAN'T KEEP A good PDA down. Apple is preparing the next revision of the Newton OS—code-named Dante and expected to be version 2.0—for a fall release. In an unauthorized demonstration, *Macworld* had hands-on time with a MessagePad 120 running a late beta of Dante. Dante is faster than Newton, has much-improved handwriting recognition, lets you pivot the MessagePad to use it in landscape mode, and features numerous interface modifications and improvements.

Faster and Smarter

With Dante, you'll spend less time waiting for your MessagePad and more time writing on it. In performing several rough tests, *Macworld* editors found that Dante runs both Apple and third-party applications nearly twice as fast as the current Newton OS. The speed improvement is noticeable throughout the system: the unit we examined felt more responsive overall, especially when scrolling, and we spent appreciably less time waiting for applications to launch or close. According to developer sources, apps written specifically for Dante should gain even more dramatic speed benefits; currently apps so constructed can be made to run on earlier OS versions.

Dante's improved handwriting-recognition engine is at least as impressive as the OS's newfound quickness. Even though we didn't specifically train the system software, the MessagePad we tested recognized handwriting quickly and accurately enough to make taking notes a real possibility. Dante now marks the text-insertion point at all times with a caret instead of the cursor that appeared with the keyboard; tapping the caret brings up a menu of punctuation, a boon to scribes used to battling with the virtual keyboard to produce a semicolon. Other

changes to the text-entry engine include a new, casual sans serif font and the ability to insert unprocessed digital-ink text into a line of recognized text.

Spin the Newton

Click on the Rotate button at the bottom of the screen, and a Dante-equipped MessagePad's screen goes black for a few seconds, only to clear and show the desktop rotated clockwise 90 degrees. All the Newton system applications work in landscape mode, but developers will have to tweak their apps to work on a rotated Newton. Landscape mode is especially useful when working with week and month views in the Newton's calendar; the sideways orientation also facilitates viewing faxes, which Dante now allows MessagePads to receive.

The system-level data applications have all received updates for Dante. Users can now create two new types of Notes: checklists and outlines. The former automatically adds a check box to each line item, while both types offer buttons for changing the indent level of your outline items. Avid schedulers will be happy to hear that you can finally easily create repeating events within Dates. Also, users now get on-screen arrows for scrolling within a day. Clicking on the built-in arrows on the bottom of the screen moves you from day to day. Within Names, users can now create groups of names, the fields are larger and easier to enter data in, and there's better handling of E-mail addresses. Also, the long, tiny index alphabet running across the bottom of the screen has been replaced with a set of larger, two-letter index tabs near the top of the screen. There's even a brand-new system application: Calls. You can manually create a Call, or automatically create one and start a call timer by asking the Newton to dial a number for you. You can take notes in the Call record and, via a pop-up menu, mark a Call as completed, busy, no answer, or some other classification.

Built for Comfort

Dante makes the MessagePad a friendlier experience. For instance, *Macworld* saw a new wait icon that signals that the Pad is chewing on an extended task, and a bar that fills while Dante is working on a search. The very first time that a Dante MessagePad is turned on, it runs through a brief per-

IN BRIEF

Minding Your Business

Bestware (201/586-2200) expects to ship version 6.0 of M.Y.O.B. Accounting small-business accounting software in late September. The package will be Power Mac native, and will provide additional project-management tools and expanded report-customization capabilities. Context-sensitive help will be available, and users will be able to set up reminders for recurring transactions and enter dated notes. The company expects the street price to range from \$69.99, without the payroll module, to \$139.99, with the payroll module.

Scheduling Your Business

Those whose lives are organized by a Day-Timer can now transfer that experience to the Mac. Day-Timer Technologies (415/572-6260) is releasing Day-Timer Organizer 2.0 (\$59.95) for the Macintosh. The software combines PIM, scheduling, and contact-management functions. A network version (\$525 for ten-user pack, server required) is also available that provides group scheduling and selective sharing of contacts and notes.

Analyzing Your Business

StatView 4.5 (\$595), now shipping from Abacus Concepts (510/549-1949), features quality control and survival-analysis routines, new analysis and graph templates, and comprehensive Apple Guide help.

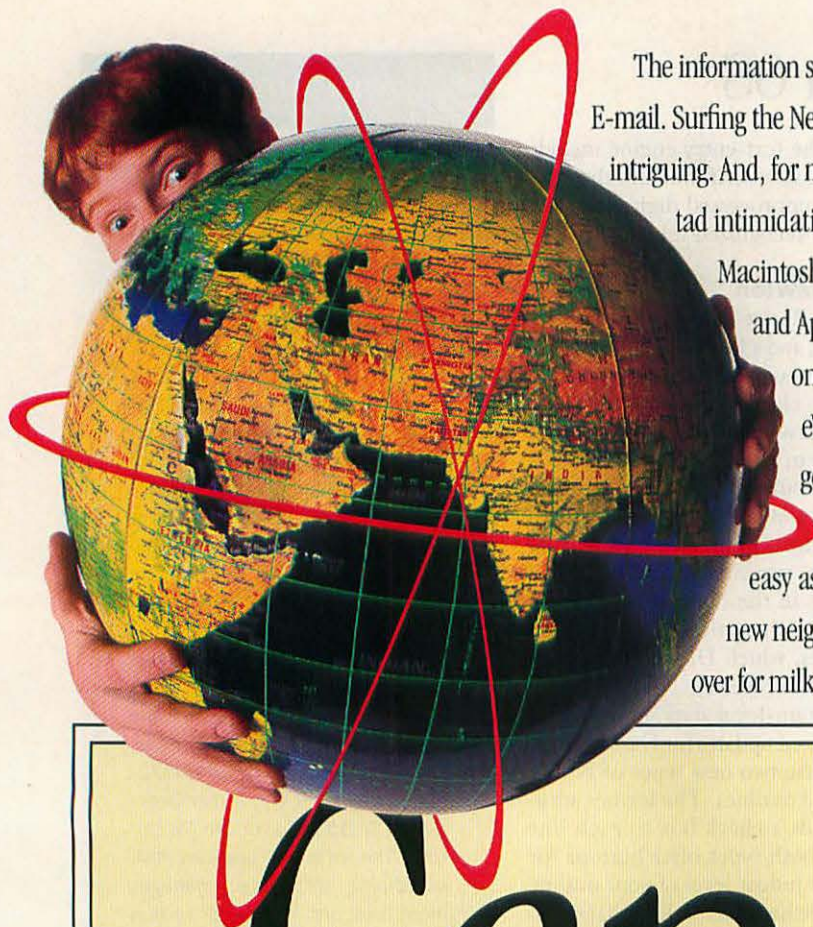


KEVIN CANDLAND

With Dante, the next version of the Newton OS, users get better handwriting recognition, more speed, and nifty new Note types, like the Outline, shown here.

sonalization tour where the user enters his or her name, address, and phone number; sets the current date and time; and stores a copy of his or her signature in digital ink. According to developer sources, you can easily apply the signature to outgoing faxes, E-mail, or letters. In general, Dante's interface has a more sophisticated feel. Text, graphics, and controls are larger, smoother, and more attractive, and there's also a new set of sounds—clicks, beeps, and squeaks.

The Newton still has a long way to go as a platform: Apple needs to improve the connection back to desktop machines; wireless communications are still limited and expensive; and the MessagePad itself needs more RAM, true PC Card (formerly PCMCIA) slots, and a faster CPU. But for the meantime, Dante looks like a step toward a more usable MessagePad.—C.C.

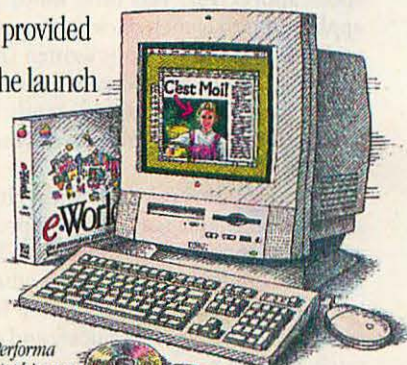


The information superhighway. E-mail. Surfing the Net. It sounds intriguing. And, for many of us, a tad intimidating. But the Macintosh® Performa® and Apple's own on-line service, eWorld™, make getting started on-line as easy as inviting the new neighbor kids over for milk and cookies.

article for a school project. For kids, the Internet turns what they may see as the "drudgery" of research and report writing into the excitement of discovery. What's more, Apple's own eWorld has quite a few "kids only" sections, where they can share ideas and stories with other children in a fun, friendly environment. They can even begin exchanging e-mail with new friends from all over the globe.

Performa. The family vehicle for the information superhighway.

Most Performa models come with a modem and all the software you need to get on-line right away. Plug the telephone line into the modem, follow the simple tips provided by the launch



The Performa and Apple's own eWorld make it easy for you to start exploring cyberspace. And it's so easy to set up, you probably won't even have to ask your kids for help.

Can

your kids invite home 31 kids from 6 countries and not track dirt all over the carpet?



Now your kids can share experiences with hundreds of kids around the world. And there's no need to worry about those stubborn, unsightly ground-in carpet stains.

If you could give your kids one thing, wouldn't it be the world?

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BY JIM HEID

Working Smart

The Power of Desktop Printing

SO, HOW DO YOU LIKE QUICKDRAW GX? You haven't installed it either, eh? The Macintosh world hasn't exactly embraced Apple's latest version of QuickDraw, the fundamental graphics architecture responsible for the Mac's screen displays and printed output—even though GX is included with System 7.5. That's too bad, because GX has some great features. It can automatically make fractions, tweak character spacing, and sweat all the little details that make typographers' hearts go pitter-patter—and that make ordinary business documents look better. And GX is ready to take on the world: its support for non-Latin alphabets is unmatched.

GX also has a new print architecture, called desktop printing, that provides new ways to print documents and manage jobs waiting to be printed. It's a boon to just about anyone who prints anything.

Unfortunately, GX has stiff memory and processor requirements, and there isn't much software available that exploits its typographic features. But GX's desktop printing features work with existing programs, and Apple has also released Desktop PrintMonitor, a new version of the Mac's printing software that provides desktop printing without QuickDraw GX. Desktop PrintMonitor works with all recent Apple printer drivers, including LaserWriter 7.X and 8.X, as well as with QuickDraw-based LaserWriter and StyleWriter drivers. Desktop PrintMonitor is included with Apple's latest printers and is also available online.

Desktop PrintMonitor works well, but it has some rough edges that I'll discuss this month as I present some tips for desktop printing. Except where noted, everything here applies to both QuickDraw GX and Desktop PrintMonitor.

The Desktop Printer Icon

The gateway to desktop printing is a new icon called the desktop printer, which the Mac creates for every printer you use the first time you select it in the Chooser (see "A Quick Reference to Desktop Print-

ing"). A desktop printer icon represents a specific printer and its print queue (list of jobs waiting to be printed). Once you create a desktop printer, it remains on the desktop unless you drag it to the Trash.

One basic benefit of a desktop printer icon is drag-and-drop printing: drag a document icon to the desktop printer icon, and the Finder starts or switches to the program that created the document and presents its Print dialog box.

When you select a desktop printer icon, a Printing menu appears on the menu bar. One slick thing you can do with the Printing menu is pause printing.

If you have more than one desktop printer icon, you can designate one of them as the current printer by selecting that icon and choosing Set Default Printer from the Printing menu. QuickDraw GX also provides a pop-up menu in the GX Print dialog box to specify which printer to use for a given print job.

Inside a Desktop Printer Icon

When you double-click on a desktop printer icon, a window opens, listing details about the jobs that are printing or waiting to be printed. This window, together with the Printing menu, gives you dazzling control over print jobs.

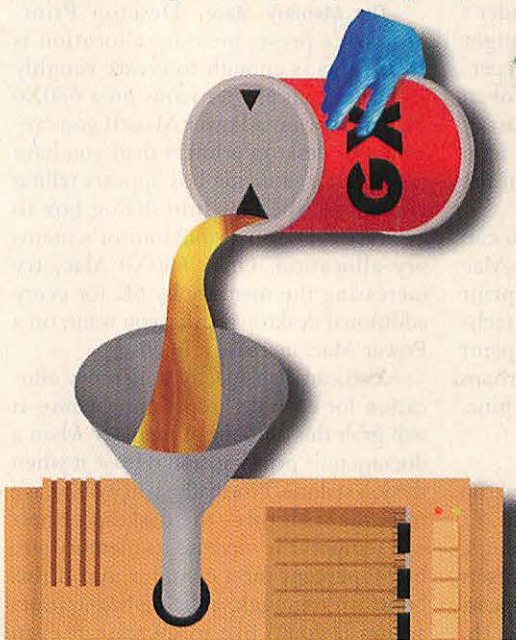
Schedule Printing Select a waiting print job and choose Set Print Time from the Printing menu. Use the subsequent dialog box to specify when you'd like the document to print. To make a job print first, click Urgent. To specify a schedule for a bunch of jobs, select them and then choose Set Print Time.

Rearrange the Print Queue Seconds after sending a huge report off to the printer, you realize that you need to print an urgent memo. With desktop printing, you can postpone the big job. In the queue window, select the job and choose Hold Print Request from the Printing menu, or drag the job down to the bottom half of the window. Now print your memo.

You can then resume the big print job by dragging it back to the status area of the desktop printer window or by selecting it and choosing one of the two Resume commands in the Printing menu. Choose Resume on Page One to restart the job, or Resume on Page . . . to start printing from a certain page.

Redirect a Print Job Instead of delaying that huge print job, you could send it off to a different printer on your network. In

continues



Say you want to gang a bunch of documents to print later—perhaps when you return to the office and connect your PowerBook to the network. Choose Stop Print Queue from the Printing menu and use your applications' Print commands as you normally would. As you "print" documents, their print files line up in the printer's queue. When you're ready to send them, choose Start Print Queue from the Printing menu.

the print queue window, select the print file and drag it to the desktop printer icon for the desired printer.

Sort the Queue When a print queue window is active, the Finder's View menu changes to allow you to sort the queue according to various criteria—number of copies, page count, document name, and print time. Shortcut: You can sort the queue by clicking on the column headings in the queue window.

Get Print Job Info Select a print job, choose Get Info, and the Finder displays details about the job, including its page count and how many copies you've specified. In QuickDraw GX, you can even view a waiting print job's contents: double-click on a print file to launch SimpleText and display the print file.

Desktop Printing Tricks

Because a desktop printer is an icon, you can do with it many of the same things you can do with disk and file icons.

Make an Alias This can be handy if you want to access the print queue window from the Apple menu (just put the alias into the Apple Menu Items folder), or if you want to arrange printer icons on a large screen or multiple monitors.

Rename the Icon You can change a desktop printer's name using the Finder's standard naming techniques. You might use a descriptive name that reflects a certain setting—such as Print at Night for an icon whose print queue is set to start at 10 p.m. (Note that renaming the icon doesn't change the printer's name in the Chooser—only on your desktop.)

Copy the Icon to Other Macs You can copy a desktop printer icon from one Mac to another. If it contains waiting print jobs, they'll be copied too. Use this technique to move an entire batch of print files from one Mac to another—perhaps from a PowerBook to a desktop machine.

Desktop Printing Traps

Like any new piece of software, Desktop PrintMonitor has its share of quirks.

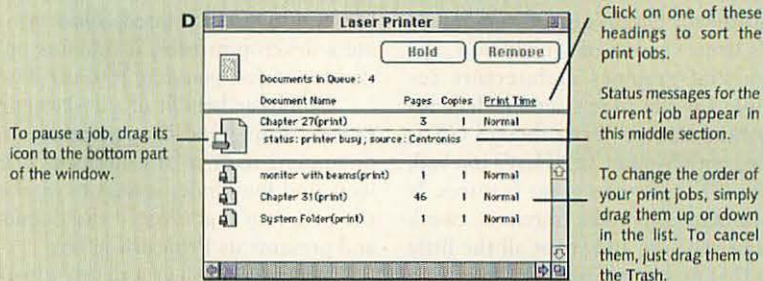
Manual-Feed Labor For starters, there's no way to disable the "please insert a sheet of paper" dialog box that appears when a manual-feed print job begins. (In the old PrintMonitor, you can use the Preferences command to specify that this annoying dialog box not appear.) QuickDraw GX 1.1.2, the current version, doesn't share this flaw—it has a command called Disable Manual Feed Alerts.

No Desktop Faxer Also unlike QuickDraw GX, Desktop PrintMonitor will not create a desktop printer icon for a fax modem driver—you still must go to the Chooser to activate a fax modem driver or use shortcut keys.

A QUICK REFERENCE TO DESKTOP PRINTING

The printing architecture common to QuickDraw GX and Desktop PrintMonitor provides many useful features for managing office print jobs. A desktop printer's icon appears on the desktop and has a bold border around it when the desktop printer is set as the default printer, as shown in **A**. When a job is printing, a document icon appears on the printer icon, as in **B**. When you pause the printer's queue with the Stop Print Queue command, the Mac's familiar Alert icon appears, as shown in **C**.

When you double-click on a desktop printer icon, its window appears, as in **D**. Here you can examine the list of jobs waiting to be printed, drag jobs to rearrange the print order, or cancel jobs by dragging them to the Trash. To set a job to print at a specific time, select the job, choose Set Print Time from the Printing menu, and set the print time in the dialog box that appears (not shown).



The Memory Maze Desktop PrintMonitor's preset memory allocation is 160K; this is enough to create roughly eight desktop printer icons on a 680X0 Mac or four on a Power Mac. If you create more desktop printers than you have memory for, a dialog box appears telling you to use the Get Info dialog box to increase Desktop PrintMonitor's memory allocation. On a 680X0 Mac, try increasing the memory by 6K for every additional desktop printer you want; on a Power Mac, increase it by 9K.

You can also specify a memory allocation for each desktop printer icon—it will grab this amount of memory when a document is printing, and release it when the job is done. Normally, you won't have to fiddle with this—the desktop printer will temporarily increase its memory size by 50 percent for a complex job. If this boost isn't enough, a dialog box appears asking if you'd like to increase it even more. If you routinely see this dialog box—perhaps you frequently print large, complex color documents—use the Get Info window to double the desktop printer icon's normal memory allocation, which is 200K.

The Disappearing Document What is the most serious flaw in Desktop PrintMonitor? When you choose a program's Save command, the desktop printer icon's name appears in the Save dialog box as though it were a real folder. If you send a

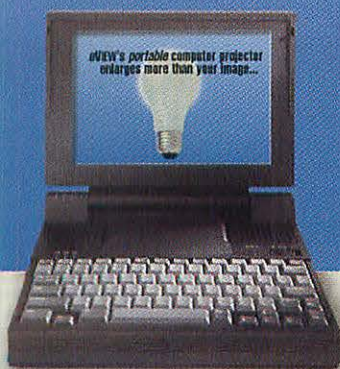
document off to limbo in this pseudo-folder, you won't be able to see or access the document in the Finder. Don't despair—the document isn't gone. It will show up in your application's Open file list, and you can then save it in a real folder. Alas, you can't use the Finder to delete the lost version. (You could delete it using a disk-editing utility such as Norton Utilities.) Also, with Apple's ResEdit or a file manager such as PrairieGroup's DiskTop, you can change the file's type to **pjob** and its creator to **prmt**. The file will then appear in the print queue window; from there you can drag the file to the Trash. QuickDraw GX doesn't share this flaw—in GX, you can't open a desktop printer's icon from a Save dialog box.

By and large, though, Desktop PrintMonitor works well. And there's another benefit to using it: Apple says QuickDraw GX will be a standard (rather than optional) part of Copland, the next major Mac OS release. By familiarizing yourself with the benefits of desktop printing now, you'll have one less thing to adjust to when Copland ships. **m**

Next month: Controlling junk files

Contributing editor JIM HEID is the author and producer of the BMUG Choice—award-winning *Macworld New Complete Mac Handbook*, fourth edition (IDG Books Worldwide, 1995), and its interactive CD-ROM, *Macworld Power User Clinic*.

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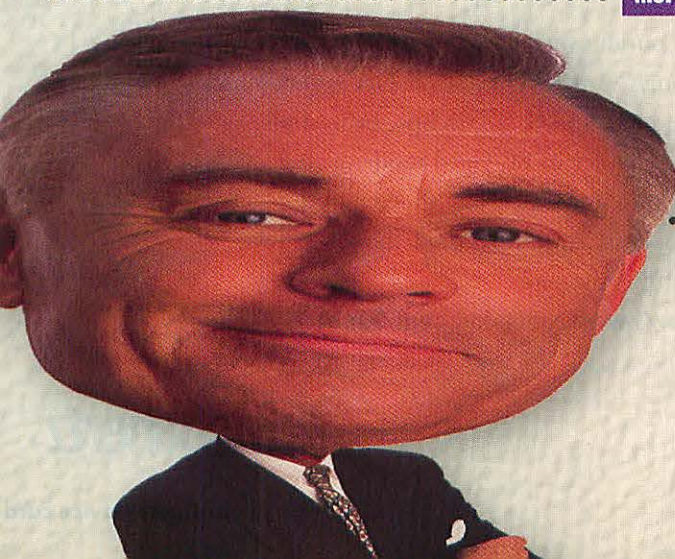
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BY LON POOLE

Quick Tips

Tips, Tricks, and Shortcuts

DIGITAL SIGNATURES ARE A GREAT IDEA—they make it possible to verify who “signed” a document and to know that the document has not been altered since it was signed (see *The Iconoclast*, February 1995). Installing System 7.5’s PowerTalk lets you apply your digital signature to any electronic document as well as authenticate digital signatures on documents you receive. The catch: PowerTalk increases system RAM usage by about 800K because of all its other features (Key Chain, catalogs and info cards, a universal mailbox, and electronic mail). It turns out there’s a simple way to get just PowerTalk’s digital signatures and increase system RAM by only about 100K. First you install and activate PowerTalk, and then you use the Extensions Manager control panel to turn off the PowerTalk Manager extension and the PowerTalk Setup control panel, leaving the PowerTalk Extension turned on. Restart your Mac, and you’ve got access to digital signatures without all of PowerTalk’s overhead.

Can't Rename Hard Drive

Q. I have a Quadra 630 with System 7.5, and for some odd reason I’m not able to change the hard drive’s name.

*Tom Gattone
via the Internet*

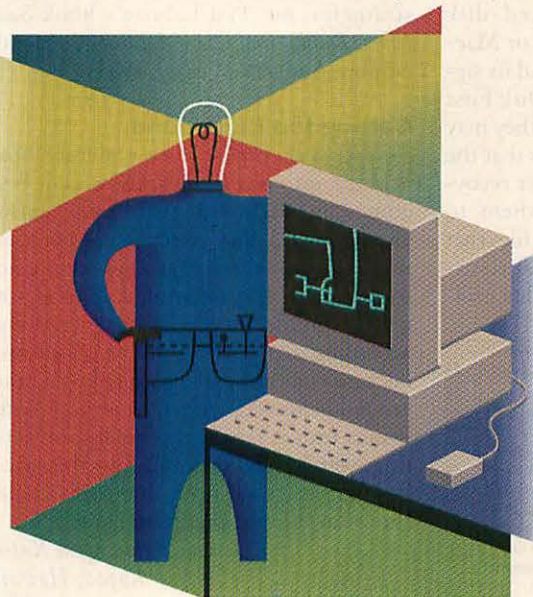
A. Make sure file sharing is turned off in the Sharing Setup control panel. While file sharing is on, you can’t change the name or icon of an item that’s available for network access.

On a Mac running the original version of System 7.0, a bug in the system software may lock the names and icons of hard drives under certain circumstances. This can happen only if the Mac crashes, has a power failure, or is improperly shut down while connected to another Mac running System 6 with the AppleShare

workstation software (which has come on System 6 installation disks since version 6.0.4). If your system is bitten by the locking bug, you can unlock names and icons with Apple’s free utility Rename Rescue. It’s also a good idea to run Apple’s Disk First Aid utility on an affected disk. This bug is corrected in System 7.0.1.

Can't Hear Audio CDs

Q. I have an LC III with an external CD-ROM drive, and I recently



installed System 7.5. Even with the Sound control panel set for maximum volume, the LC’s built-in speaker performs at whisper level when I play an audio CD. Never loud before, it’s now sepulchral. Do I have any options short of upgrading to another Mac? Can I replace the built-in speaker or add external speakers? I’m getting torticollis from operating the Mac with my ear glued to the CPU.

*Tony Power
Riyadh, Saudi Arabia*

A. Only Macintosh models that are capable of accommodating an internal CD-ROM drive can play audio CD sound properly through the internal speaker or through the stereo headphone jack located on the back panel. The sound can come from an internal CD-ROM drive through a sound-input connector on the Mac’s system board, or it can come from an external CD-ROM drive through the Mac’s microphone jack. Alas, the LC III is not one of those Macs.

You can hear audio CD from any Mac’s external CD-ROM drive by connecting the drive’s sound-out jacks to a pair of powered speakers or a stereo system. Use magnetically shielded speakers if they’ll be near a monitor or disk. If you want to hear the Mac’s sounds and the audio CD sound through the same speakers, get a pair of powered speakers with mixed dual inputs (one input for the computer and the other for the CD-ROM drive), like the AppleDesign Powered Speakers I or II.

On Macs that can play audio CD sound through the internal speaker, the Options button is not dimmed in the

Sound In section of the Sound control panel. To hear audio CD sound, you click that Options button and, in the dialog box that appears, select the input source (Microphone or Internal CD) and turn on the Playthrough option.

Beyond First Aid

Q. I’m using 79MB on my hard drive, including the desktop files and invisible files, but the Mac claims the

continues

amount is 147MB. Running Apple's Disk First Aid produced the following report:

Checking disk Macintosh HD.

Checking disk volume.

Checking extent BTree.

Problem: Invalid key length, 3, 9

Rechecking catalog file.

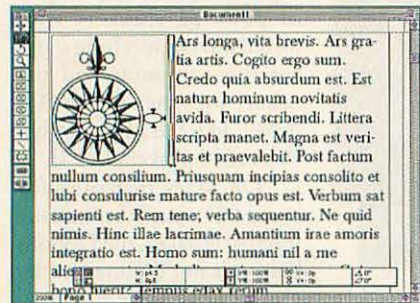
Test done. Problems were found, but Disk First Aid cannot repair them.

Do you know how to fix it?

James A. Ferguson
via the Internet

Apple's free Disk First Aid program looks for and can fix some damage to a disk's directory, which keeps track of where files are stored on the disk. The Mac OS maintains the directory automatically, updating it every time you save changes to a file or create a new file. The directory can become damaged when the Mac freezes or crashes, when an application quits unexpectedly, and so forth. The damage may be so slight you don't notice a problem, but over time the damage can grow and become irreparable.

When Disk First Aid says it can't fix a problem, put the disk through the repair process several more times anyway. The problem may be one that Disk First Aid can fix bit by bit. If after several attempts Disk First Aid still finds problems, you need to bring in a high-priced disk mechanic—Norton Utilities 3.1 or MacTools Pro 4.0. Both can detect and fix significantly more problems than Disk First Aid. If they can't repair the disk, they may be able to recover individual files that the Finder can no longer access. After recovering lost files and copying them to another disk, together with other files that haven't been backed up, you can resurrect the disk by formatting it with a utility



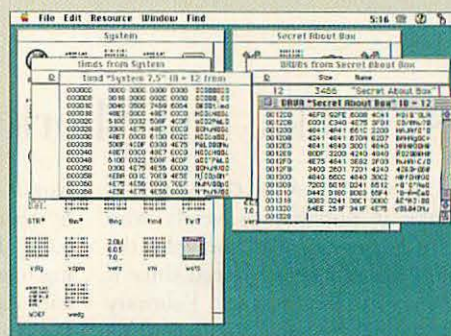
Giving the Runaround Although QuarkXPress's Runaround command won't work with an anchored picture box, you can dynamically adjust the space between the box and the text alongside it by first pasting an empty, frameless picture box next to your original picture box. To offset the text, widen or narrow the empty picture box the appropriate amount. Using the Measurements palette or the Anchored Picture Box Specifications dialog box, give both picture boxes the same alignment—either with the text ascent (as shown here) or with the text baseline.

SECRET ABOUT BOX IN 7.5.1

Installing the System 7.5 update 1.0 disables the "secret about box" Breakout game (a System 7.5 Easter egg described in *Quick Tips*, February 1995). William S. Peters of Salt Lake City found a way to turn this game into a self-contained desk accessory that works with all versions of the Mac OS. First copy a small DA such as the Calculator and rename it Secret About Box.

Next use ResEdit to open both the System file and the Secret About Box desk accessory. Now copy the contents of the timd resource 12 in the System file into the DRVr resource 12 in the desk accessory (shown here). To do this, double-click the timd resource icon in the System file and select resource ID 12. Then choose Open Using Hex Editor from the Resource

menu. Next choose Select All (Edit menu) followed by Copy. Now double-click the DRVr resource in the desk accessory, select resource ID 12, and choose Open Using Hex Editor from the Resource menu. Choose Select All (Edit menu), followed by Paste. Save your changes to the DA and quit ResEdit. That's it. Launch your new Secret About Box desk accessory and enjoy.



ty such as Casa Blanca Works' Drive7 or FWB's Hard Disk Toolkit.

For additional disk-repair options and strategies, see Ted Landau's book *Sad Macs, Bombs, and Other Disasters*, second edition (Addison-Wesley, 1995).

Getting the Runaround

TIP When you paste a picture box into text in QuarkXPress, it becomes an anchored picture box (also known as an inline graphic) and you can no longer use the Runaround command to change its text runaround. This is not a major problem if you lay out everything according to precise design specifications, because you can set the picture box's runaround before copying it; when you paste it into text, it brings the runaround settings with it. However, to adjust the spacing by eye, you'll need the workaround shown in "Giving the Runaround."

Swami Arumugam Katir
Kapaa, Hawaii

DOS Floppy Follies

TIP The biggest headache in using DOS floppy disks on a Mac is incorrect formatting. DOS/Windows PCs are brain-dead when it comes to formatting floppies, and will easily let you increase the capacity of a double-density disk (the kind with one hole at the top) by formatting it as if it were a high-density disk (the kind with two holes at the top). You can use an incorrectly formatted floppy on DOS/Windows machines,

although it will fail eventually. Such a floppy will never work on a Macintosh, which recognizes a floppy with two holes at the top only as a high-density floppy, regardless of formatting.

When you insert an incorrectly formatted DOS floppy into a Mac, it tells you "This is not a Macintosh disk," even with PC Exchange installed. There is nothing you can do to get the Mac to recognize an improperly formatted double-density floppy, short of drilling a second hole in the floppy. My suggestion is to provide your DOS buddy with a correctly formatted DOS disk on which to copy DOS files, and then you can be sure the disk will work in your Mac.

Barry J. Silver
Bethlehem, Pennsylvania

Readers occasionally send tips about saving money by drilling a hole in an 800K (double-density) Mac floppy and reinitializing it as a 1.4MB Mac floppy. This is false economy. The coating that magnetically stores files on a true 1.4MB (high-density) floppy is formulated to resist demagnetization more strongly than an 800K floppy's coating because initializing at the higher capacity packs the magnetic bits in the coating closer together. When you initialize an 800K floppy at 1.4MB, its magnetic bits may eventually demagnetize each other. Pushing an 800K floppy to higher capacity also makes it more susceptible to external magnetic fields, such as a magnetic paperclip dispenser with a paper clip sticking out from the top. Moreover, drilling or cutting a hole may cause plastic bits to fall inside the floppy housing where

continues



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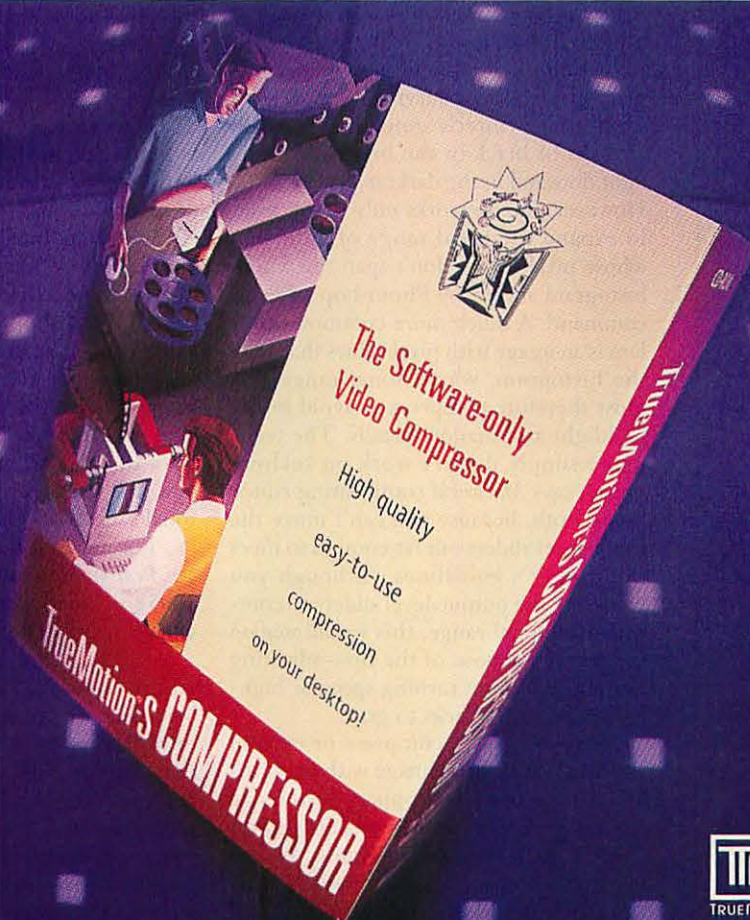
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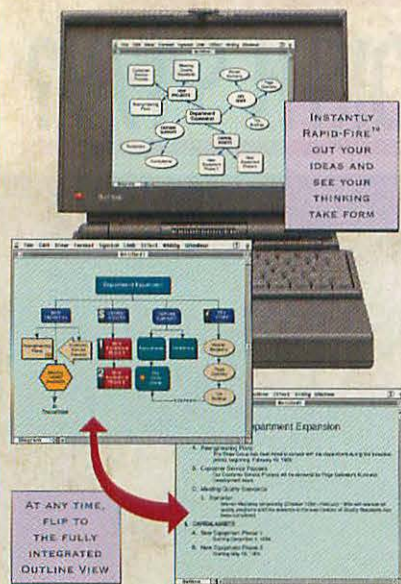
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they can scratch the floppy surface. Don't risk your hard work to save a few bucks—initialize floppies at their rated capacity.—L.P.

Thawing a Frozen Program

TIP Netscape Navigator 1.0 and 1.1 sometimes freeze up and don't respond to ordinary controls such as clicking Netscape's Stop button or pressing ⌘-period (.). When this happens I use the Mac's Force Quit command, ⌘-option-escape. This keystroke brings up a dialog box with a Force Quit button and a Cancel button. Clicking Cancel returns me to Netscape, which then resumes loading the screen that was under way when the freeze occurred.

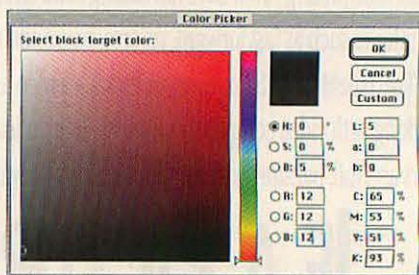
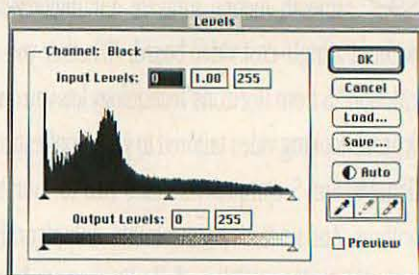
Derrick Daugherty
Austin, Texas

The same trick has worked for me with QuickKeys, AppleLink, Newton Toolkit, and other applications. Clicking Cancel (not Force Quit) sometimes seems to act like a whiff of ammonia for a program that has passed out. It doesn't often work, but when it does it beats the alternatives.—L.P.

More Highlights and Shadows

A tip in the August *Quick Tips* explained how to adjust a gray-scale image with Photoshop before sending it to a commercial printer or service bureau, so it meets the printer's guidelines for the amount of black in the brightest highlight dots and in the darkest shadow dots. However, the tip works only if you need to expand the tonal range of an image whose pixel values don't span the whole histogram shown by Photoshop's Levels command. A much more common problem is an image with pixel values that span the histogram, whose tonal range you must therefore compress to avoid losing highlight and shadow details. The technique simply doesn't work on such an image, says *Macworld* contributing editor Steve Roth, because you can't move the input-level sliders out far enough to meet the printer's guidelines. Although you could use the output-level sliders to compress the tonal range, this would negate the whole purpose of the tip—adjusting the range without turning specular highlights and solid blacks to gray.

You can easily compress or expand the tonal range of an image with the black and the white eyedropper buttons in Photoshop's Curves or Levels dialog box. (The latter is preferable because you can use Photoshop's Threshold mode to find the shadows and highlights, as described in the August tip and in the user guide that comes with Photoshop.) First make sure the Use Dot Gain for Gray Scale Images option is turned off in Photoshop's Printing Inks Setup dialog box.



Eyedropper Buttons Here's how you set Photoshop's eyedropper buttons to target highlight and shadow values specified by your printer. First double-click the black eyedropper button in the Levels dialog box (top), bringing up a color picker (bottom). In that color picker, enter values for R, G, and B that correspond to the printer's shadow specifications. For instance, 12, 12, and 12 correspond to 95 percent black. Then double-click the white eyedropper button to set R, G, and B values that correspond to the printer's highlight specification.

Then set each eyedropper button to the target highlight and shadow values specified by your printer, as shown in "Eyedropper Buttons."

Open an image and bring up the Levels dialog. Next select its black eyedropper and click the darkest shadow detail. Photoshop maps it to the target value you set for shadows and adjusts the image's tonal range commensurately. Finally, select the white eyedropper and click the lightest detail in the image. Photoshop maps it to the target value you set for highlights and adjusts the tonal range.

For more on the eyedropper buttons, see *Real World Photoshop* (Peachpit Press, 1995) by David Blatner and Bruce Fraser, edited by Steve Roth. **m**

We pay from \$25 to \$100 for tips published here. Send questions or tips on how to use Mac computers, peripherals, or software (by mail or electronically) to *Quick Tips*, Lon Poole, at the address listed in *How to Contact Macworld* at the front of the magazine (include your address and phone number). All published submissions become the property of *Macworld*. Due to the high volume of mail received, we're unable to provide personal responses.

LON POOLE answers readers' questions and selects reader-submitted tips for this monthly column. His latest book is *Macworld System 7.5 Bible*, third edition (IDG Books Worldwide, 1994).

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EDITED BY ELIZABETH DOUGHERTY

Networks

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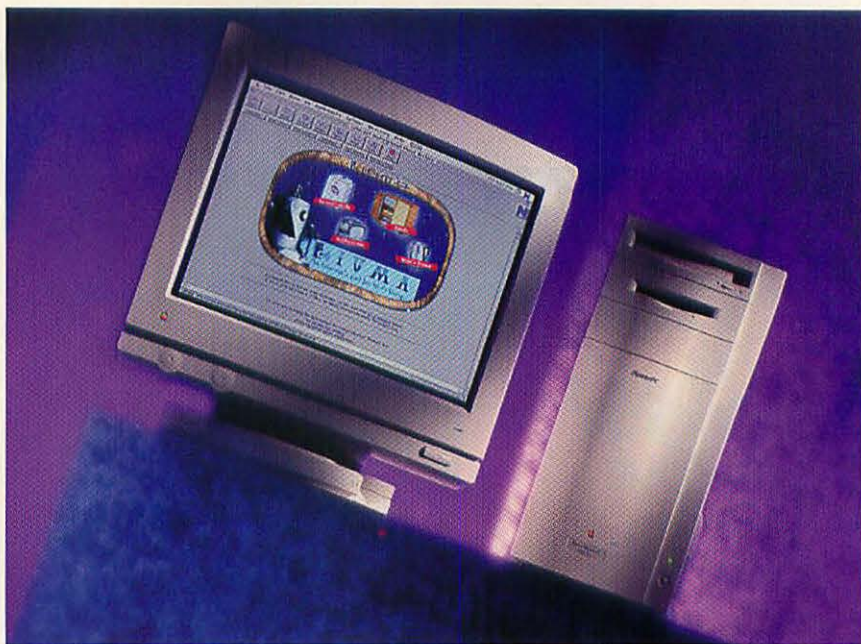
The Mac as an Internet Server

THE WAY APPLE TELLS IT, A MAC IS the ideal solution for all your networking needs, even for an Internet server. The new Power Macintosh 7500, 8500, and 9500 are barn burners when it comes to performance, and they'd seem ideal candidates for Internet duty. However, their networking capabilities depend on Apple's new Open Transport, which is a major rewrite of Apple's network architecture. And when it comes to Internet performance, Open Transport is not ready for prime time.

For routine networking needs, such as printing and sharing files, the first releases of Open Transport have performed well. But for Internet connections, there are problems. The Read Me files for the shipping versions of Open Transport describe a litany of conflicts and workarounds involving Serial Line Internet Protocol (SLIP) and Point-to-Point Protocol (PPP) hookups (the connections you need for the Internet). As this issue went to press, Open Transport release 1.0.7, designed as a patch for the 1.0.6 release offered on the latest PCI Power Macs, was expected to fix still more SLIP and PPP connection issues.

The first release of Open Transport intended for all Macs, not just the 7500, 8500, and 9500, will be 1.1, and it isn't due till the end of 1995. The release will have more bug-fixes and will be tuned for high-speed data links and server programs. Apple is reportedly working on a new line of Internet servers that will incorporate the second-generation Power Macs. These will not hit the marketplace until after Open Transport 1.1 is out, which means not until sometime in 1996.

At the other end of the scale, application developers need to revise their software to harness the potential of Open Transport. A program that's tuned for Open Transport can experience speed



You can use this Power Mac 9500/132 and a Web browser to connect to Internet sites like the Internet Underground Music Archive (<http://www.iuma.com/IUMA-2.0/home.html>), but the machine's Open Transport software might give you a headache along the way.

increases of up to 300 percent, reminiscent of the performance boost you get switching from 680X0 to native Power Mac software. Apple's Internet servers depend on StarNine's WebStar server software, which is being revised to be compatible with Open Transport.

If you want to buy an Internet server package directly from Apple today, your choice is limited to Apple's existing Internet Server Solution for World Wide Web line, which is based on first-generation Power Macs (the Workgroup Server 6150/66, 8150/110, and 9150/120 computers) and includes a bundle of Internet-specific software. (See *Reviews, Macworld*, October 1995, for the 6150/66 version.)

Despite the fact that Apple is still promoting yesterday's technology for Inter-

net server duty, the response bodes well for Apple's presence in this market (for more on the Mac's online presence, see *News*, elsewhere in this issue). A readership survey in the July 3, 1995, issue of *Interactive Age* magazine indicated that 17.5 percent of those intending to buy an Internet server over the next 12 months planned to purchase an Apple product.

Although reception to its Internet products seems good, Apple continues to face heavy competition from Unix servers and the Windows/Intel market. To remain competitive, Apple will have to keep its computers up-to-date with the competition. How fast Apple can do that may be the key to Apple's future success in the burgeoning Internet market.

—GENE STEINBERG

Farallon Adds ISDN Router

FARALLON HAS JOINED THE GROWING club of vendors producing ISDN routers targeted at Internet users. The company is working to make the connection simpler and cheaper by offering a support program for coordinating equipment, ISDN, and Internet service.

Farallon's Netopia router comes in three versions: the 630 supports five users, Ethernet (AUI and 10BaseT), and TCP/IP; the 640 adds unlimited users; and the 440 adds a LocalTalk connection, AppleTalk support, and AURP tunneling. On the ISDN side, all three support Basic Rate ISDN (two B channels and one D channel) and have a built-in network terminator (NT1).

Farallon bundles TCP/IP client software (MacTCP), as well as E-mail and

Web-browsing software. For an additional fee of around \$500, the company will do everything necessary to get your site up and running, working with your local telephone company and Internet service provider to configure your router correctly. The Netopia routers are expected to be available in October for \$1000 to \$1400 (company's estimated street price) from Farallon (510/814-5000).

—CAMERON CROTTY



Farallon's Netopia 440 ISDN router, with its bundled software and optional integration service, helps streamline connecting your network to the Internet.

NetWare 4 for PowerPC



APPLE COMPUTER AND Novell continue to work on a port of NetWare version 4 to the PowerPC. One crucial test of its success when it finally ships (Apple has revised the release date several times) will be whether it gains support from third-party developers. Apple submitted a beta version of NetWare for PowerPC to Novell for certification at the end of August; Apple now says it's targeting the end of 1995 or even early 1996 for a ship date.

NetWare is the world's most popular network operating system, commanding about two-thirds of market share. A multitasking, multithreaded OS, NetWare comprises hundreds of NetWare Loadable Modules (NLMs). Third parties can create their own NLMs to add functions to a NetWare server. NLMs can offer virus checking, client-server databases (such as Lotus Notes), enhanced security, enhanced server management, server-based backup, dial-in/out network access, gateways to mainframe hosts, gateways to the Internet, and other capabilities.

NetWare is optimized for print and file services, and NetWare running on existing Intel platforms easily outperforms AppleShare on Macintosh servers. While porting NetWare to the PowerPC would bring this enhanced performance to an Apple server, all the maintenance and management would still need to be done from a Windows platform or from the server console, which uses a com-

mand-line interface. Apple sees the main advantage of NetWare running on the PowerPC coming from the higher performance of the RISC CPU, but this performance gain would mostly appear in add-on NLMs.

Apple claims to have seeded about 30 developers with alpha versions of NetWare for the PowerPC around May of this year, but at press time neither Apple nor Novell would name any names. We were able to confirm that Lotus was not working on a version of Notes. Firefox (408/467-1100), which makes TCP/IP-management software for NetWare servers, plans to port its Novix server NLMs to the PowerPC by year-end; the company already offers a Mac client. Novell would not confirm whether it plans to port any of its add-on NLMs to NetWare for the PowerPC.

So how easy is it to port existing NLMs to the PowerPC environment? Rei Jane Huai, president and CEO of Cheyenne Software, who confirmed that his company is planning to ship its backup software NLM at about the same time Apple releases NetWare for PowerPC, says, "As long as you followed the rules in originally creating an NLM, the process of porting is easy. NLMs are usually written in C, which is highly portable."

Apple plans to use Novell's existing distribution channels but will require all dealers who sell the product to carry PowerPC servers as well. Support would come from the dealer, Apple, and ulti-

IN BRIEF

■ Deltec Manages Power

When it comes to power-management software, Macintosh users face their own version of "And they don't take American Express." But now, with Deltec's LanSafe III (starting at \$99; 619/431-7466), network managers can track AC line power problems, monitor battery condition, and ensure orderly network shutdown during power outages. Used in conjunction with Deltec's PowerRite line of UPS (uninterruptible power supply) products, LanSafe prompts users to save work in progress while keeping Macs running during a power loss. LanSafe will save work in progress on unattended systems, and automatically initiate shutdown of Macs in priority sequence.

■ Backup Flexibility

Administrators seeking more flexibility in their backup schedules should check out a new feature in Retrospect 3.0 (\$249) and Retrospect Remote 3.0 (\$449) from Dantz Technology (510/253-3000). The Backup Server feature runs data backups according to need, rather than on a strict schedule, based on guidelines created by the administrator. For instance, one department's hours for backup could be any weekday between 10 p.m. and 8 a.m., while PowerBook users could choose to back up when they reconnect. Dantz plans to start shipping the upgrade in early September. Retrospect 3.0 runs only on System 7-based machines, while Retrospect Remote 3.0 runs on System 6-based client machines. Dantz is also adding a simplified scripting capability for setting up backup guidelines and AppleScript support. Upgrades to Retrospect 3.0 cost \$49.95, while upgrades to Retrospect Remote 3.0 cost \$79.95; the upgrade is free to users who bought version 2.1 of either product after August 1, 1995.

mately Novell. It's unclear how many NetWare dealers would be willing to carry NetWare for the PowerPC, since it will be priced the same as existing versions of NetWare, and dealers would be required to act as the first line of support.—MATTHEW LEEDS



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PowerBook Notes

The New PowerBooks

APPLE HAS THREE NEW POWERBOOK lines: the 5300 series, which has fewer built-in features but more expansion options than the 500 series; the 2300 series; and the 190 series. The 5300 and 2300 have PowerPC processors; the 190 is the last 68040 Macintosh that Apple will sell in North America. For an introduction to these models, see the feature "PowerPC Portables" in this issue. Here, I examine some of the technical issues surrounding these new models. Unless otherwise noted, my comments apply to the 5300 series and the 190, not to the 2300.

Although the 5300 series and the 190 series use the same basic case design and can share many accessories, their internal layouts differ somewhat; for example, the power supply is on a separate board in the 5300, but is integrated into the motherboard on the 190. Both models have a keyboard identical to that of the 500 series, which may disappoint people who have had trouble with 500-series keyboards, although those on the prototype 5300 PowerBooks I tested seemed fine. (The 5300-series keyboards have a different mechanical mounting and so cannot be swapped with 500-series keyboards.)

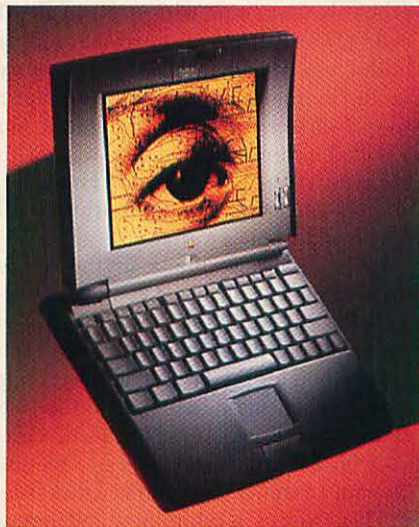
Although the 5300 series' use of a built-in PC Card (formerly PCMCIA card) and IDE hard drive represents a move toward the standardized hardware used by PC laptops, Apple has actually introduced three new proprietary interfaces for adding accessories: the expansion (media) bay, a video-card connector, and an infrared connector. In many cases, the new interfaces along with the old offer several ways to perform the same function, such as connecting to Ethernet.

The Expansion Bay

The 5300 and 190 series come with a floppy drive in the expansion bay, but you can slide the drive out and replace it with an accessory—most likely a disk drive that connects to an Enhanced IDE interface in the expansion bay. In addition to the floppy disk and IDE interfaces, the expansion

bay has connections for sound in (but not out), power in, and power out for the device in the expansion bay.

Enhanced IDE in an IBM-PC-compatible desktop computer normally supports a total of four drives: two connectors—primary and secondary—each support a master and a slave drive. A slave drive cannot start the computer. In the



PowerBooks, the Enhanced IDE controller does not support slave drives; instead, the internal hard drive is the primary master and any drive (except a floppy) in the expansion bay is connected as the secondary master.

Although the IDE interface is standard—you will need a Macintosh-compatible driver for any drive—the expansion bay case is proprietary to Apple. The expansion bay will accept a 2.5-inch hard drive or a new 3-inch drive, provided the drive is thin enough—16mm. Several companies offer hard drives for the expansion bay. At least initially, only prepackaged drives will be available, so you won't be able to install your own drive in a case; IDE drives require a small interface circuit board in addition to short connector cables.

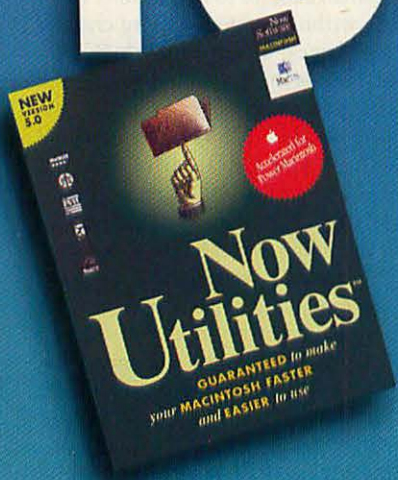
From a customer's standpoint, Apple's switch to IDE drives does not actually save much money. The price advantage of IDE over SCSI drives has narrowed, and you still have to pay for the SCSI controller and connector that Apple puts on every motherboard for connecting external SCSI devices. But Apple says it will stick with IDE because the newest, highest-capacity drives come out first in IDE versions. The IDE controller will operate drives of up to 8.4GB, although the largest currently available in a 2.5-inch size is 1.3GB.

Most of the 3.5-inch removable-cartridge drives from SyQuest and Iomega are not small enough to fit into the expansion bay without some redesign; chances are that drives with 10mm-thick cartridges, such as the SyQuest 3.5-inch and the Iomega Jaz, will never fit in the bay. Fujitsu (408/432-6333) has a 230MB magneto-optical (MO) drive for the expansion bay; a 640MB version should be available next year. Some cartridge drives, including opticals, consume considerably more power than a standard hard drive, making them less than ideal candidates for battery operation. Even the power-hungry drives will, however, work fine under AC power. Some will need revised driver software to add PowerBook features such as sleep mode.

An IDE drive does not have to be inside the expansion bay; a cable adapter could plug into the expansion bay to bring out the IDE, power, and audio-input connectors for a drive too large to fit. The most obvious example would be an external CD-ROM drive, perhaps built into a base that sits under the computer and includes a pair of small stereo speakers. A CD-ROM drive could also be installed on the SCSI port, but the SCSI port would be unable to provide power for the drive, and SCSI termination requires more power than IDE termination. Apple considered offering an optional 3-inch 170MB CD-ROM drive that could fit in the expansion bay.

continues

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— *MacUser*, August 1995

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pansion bay but abandoned the idea when no one wanted to produce disks that small.

Sound playback has regained one important capability included in the 140 through the 180 but missing from the 500 series. The 5300 series supports audio play-through for sound sources connected to the expansion-bay audio input, so you can hear CD audio in stereo through the audio-out jack or in mono through the built-in speaker (where the 500 series had stereo speakers built in, the 5300-series PowerBooks have only a single mono speaker because their larger screens leave no space for a stereo pair).

The expansion bay and the SCSI connector aren't the only ways to add a disk drive; you could insert a hard drive on a PC Card, but such drives are expensive and have not sold well; several drive manufacturers have stopped producing them.

Motherboard and Video Adapter

The fully equipped 5300-series motherboards come with 16MB of RAM and 1MB of VRAM (video RAM). The motherboards that come with 8MB of RAM and 512K of VRAM have space for adding both types of memory. Adding memory on the motherboard normally requires a special surface-mount soldering tool, but a skilled technician can do the work with an ordinary soldering iron. However, adding memory to the motherboard could void Apple's warranty.

The new PowerBooks are the first to provide for a video card on a video connector slot. An 8-bit (256-color) card comes standard with the 5300 series and is an option for the 190 series. The Apple card has the same video circuit as the 500-series PowerBooks, up to 832 by 624 pixels with 256 colors and 1024 by 768 pixels with 16 colors (the latter at a flickering 60Hz). Newer Technology and Focus Enhancements (617/938-8088, 800/538-8865) plan to offer video cards with more colors. The Newer Technology model displays 16-bit color (thousands of colors) on a 640-by-480-pixel screen, and 8-bit color on larger screens up to 1152 by 870 pixels. Focus supports those ranges, as well as 16-bit color for 832 by 624 pixels, with its \$299 card. Focus will offer a \$399 version that combines video with Ethernet, and also plans a \$100 Ethernet-only card. Because the new PowerBooks have space for only a single connector, Focus supplies a splitter cable for video and 10BaseT Ethernet. A 24-bit card will not be practical until denser VRAM chips become available at the end of the year. The video card connector has access to the full 32-bit CPU bus, so a video-input board installed on the video adapter connector would work faster than

a PC Card version. But because there's so little space on the video card, designing a capture card would be a real challenge.

Upgrades

A 190 can be upgraded to a 5300-series model, and Apple says its screen will be upgradable to active matrix color; however, you first have to upgrade the 190 with a PowerPC motherboard.

To open up a new PowerBook, you'll need the same Torx T-8 screwdrivers you needed for older models. Apple says the RAM card is the only internal component intended to be user upgradable. (A historical footnote: The RAM card in the 500 series was supposed to be user upgradable also, but due to last-minute changes in the motherboard shielding to meet FCC radio-frequency emission requirements, RAM installation turned out to be much more complex.)

You can upgrade a 500-series PowerBook to a 100MHz 603e PowerPC processor by changing the processor daughtercard. A 500 series upgraded with a PowerPC CPU won't be as fast as a 5300 series, however, because of the older PowerBooks' narrower 16-bit data path between the daughtercard and the motherboard. Apple calls the upgrade a "customer satisfaction product." Translation: The product makes little technical or financial sense, but it does fulfill the promise of a PowerPC upgrade that was a selling point for the 500 series.

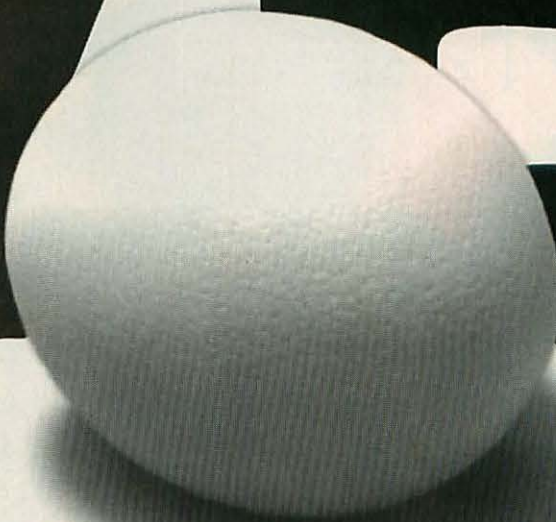
Apple will provide PowerPC upgrades for all Duo models, including the 210 and 230, by swapping the motherboard for \$1300. The screen remains the same. All upgraded Duos run at the same speed as the new 2300 series, and faster than an upgraded 500-series model. All Duo accessories should work, except some older docks that have proven incompatible with the 68040-based Duo 280 and 280c. Because the 2300 comes with an IDE hard drive while earlier Duos had SCSI drives, Apple is including both SCSI and IDE connectors on the new motherboard so that either type of drive will work internally, making the PowerPC Duos the only models with this ability. The other new PowerBooks provide for only IDE internally (and in the expansion bay), and SCSI externally. Upgrading a Duo will not change the screen or the trackball—you can only have a trackpad if you buy a new 2300. **m**

Next month: Batteries and PC Cards for the 5300 and 190; and more on the Duos

CARY LU is a *Macworld* contributing editor who covers mobile- and remote-computing issues in this monthly column.



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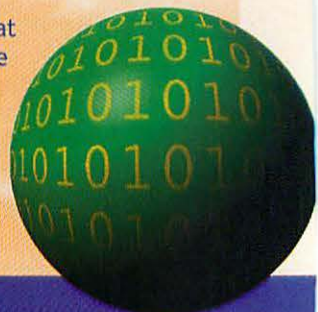
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- ☐ 35. Other _____
- ☐ 36. Does Not Apply

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- ☐ 38. 50 - 99
- ☐ 39. 100 - 499
- ☐ 40. 500 - 999
- ☐ 41. 1000 & over
- ☐ 42. Does Not Apply

WHICH PERSONAL COMPUTER(S) DO YOU OWN/USE? (Check all that apply)

- ☐ 43. Macintosh Plus/SE/SE30
- ☐ 44. Macintosh Classic Series/LC Series
- ☐ 45. Macintosh Powerbook Series/Duo Series
- ☐ 46. Macintosh II Series
- ☐ 47. Macintosh Performa Series
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- ☐ 58. 1-10
- ☐ 59. 11-25
- ☐ 60. 26-50
- ☐ 61. 51-100
- ☐ 62. 101-500
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C. The Entertainment Conference.

The best in the business discuss tools, techniques, and tips for TV, film, and commercial applications.

- Digital Video in Cyberspace • Developing Interactive Games • Animation and 3D • Techniques for Eye-Popping Special Effects • New Worlds of Expression for Digital Video.

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E. The CD-ROM Conference.

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CONFERENCE HOURS

JANUARY 9: 10:30 A.M. - 5:30 P.M.
JANUARY 10-11: 11:30 A.M. - 5:15 P.M.
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Semag Drow

Wordplay software for the cruciverbalist in you

OK, I ADMIT IT. I'M A WORD nerd. As a child, on family car trips I'd crouch in the back-seat, making anagrams on a legal pad. In high school I couldn't impress the girls with manly athletic prowess, so I made personalized crossword puzzles for them instead. And even in college, I'd join the gang for a Rambo movie only if nobody could be talked into a game of Scrabble. Lord, lord, the time I would have saved if I'd only had a Mac! Do you have any idea how much trouble it is to create a crossword puzzle with a ruler and a pencil? Shoot, even *after* I got a Mac, my tools were still crude—I would create double acrostics in MacDraw, for heaven's sake.

It's all different today. Although number-crunching programs get all the press, word-crunching programs are nearly as numerous. Spend some time with these babies, and the term *word processing* takes on a whole new meaning.

LA Times Electronic Crossword Puzzles 1.6.9a

If solving crosswords is your thing, this is your program (Random House Electronic Publishing, 410/848-1900; \$20). You get 150 professional, previously published puzzles, all beautifully displayed and easy to operate.

I say easy to *operate* (as opposed to *solve*) because these electronic crosswords remove the paper-and-pencil grunt work from solving puzzles, leaving nothing to you but the actual brainwork. Click on the grid, and the corresponding clue (such as "23 across: '58 Pulitzer author") immediately highlights in the clues list. Or go the other way—click on a clue to see where its answer falls in the diagram. No glory for working in ink anymore, either: you can change any answer at any time. Purists must hate this.

The programmers have raised cheating to an art, too; you can ask the program to indicate which squares you've filled in incorrectly, or you can wimp out totally and have it reveal a letter, a word, or the solution to an entire puzzle that's stumping you.

All the logical Mac-program goodies are here: a timer, zoom-in and zoom-out commands, a scoring system, even built-in help. Let the purists shriek; I'll take my puzzles on screen any day.

CrossPuzzler 1.11 and WordPuzzler 1.10

If you're more interested in creating puzzles than in solving them, meet the Mac-Write of puzzle-creation programs. WordPuzzler (Focus Development, 612/731-0812; \$39) is among the most efficient programs I've seen: you type up a list of words, choose one command, and you've got a genuine, great-looking word-search puzzle (you know, where you're supposed to circle words hidden in a sea of random letters). You can't believe how much fun

good news is that you can also create a puzzle manually, specifying where you want each word to go. The bad news: you can't create black squares on the main diagram as you do so—you must switch, inconveniently enough, to a separate dialog box each time.

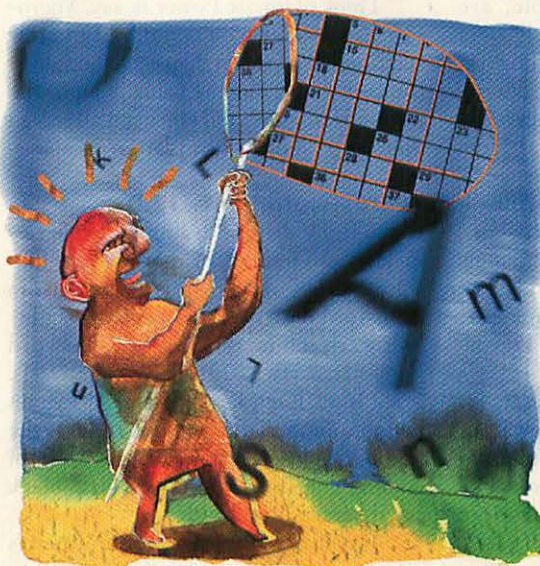
Still, both of these programs require amazingly few steps to churn out customized puzzles. You have freedom of design and type styles, and you can export the whole thing to a draw program for further tweaks. The girls in my high school would have flipped.

Crossword Publisher

And now, the QuarkXPress of crossword programs (Sheppard, 508/287-0055; \$79).

This program, too, can arrange your thematically chosen words into a basic grid. Its next trick, though, is mind-blowing: it can actually *write the puzzle for you*. You highlight a block of empty or partially filled squares, and the program proposes a solution. It does so by consulting its own massive crossword dictionary, which means that you may wind up with such crosswordish "words" as *draa* and *ard*. Fortunately, with one mouse-click you can indicate which suggested words are too radical for your tastes; the program then suggests alternatives until you're satisfied.

Crossword Publisher is geared for pros, or for pro wannabes. The terrific manual explains the ground rules for creating publishable puzzles; an option automatically places black squares symmetrically, as they are in real newspaper puzzles; and the Check Rules command compares your work with numerous professional requirements, to optimize your puzzle's chances of acceptance. You can export your puzzle as an EPS file. And the entire program, amazingly, is contained in a single 800K file—no miscellaneous support files strewn about. Its one drawback is the tininess of



it is, especially when you start taking liberties with the shape of the grid—you can make it heart-shaped, fish-shaped, anything you want. For added zest, you can fill in the remaining empty squares with a secret message, just like the pros do. Teachers of America, are you listening?

CrossPuzzler (\$39) is only slightly less effective. Once again, you merely type up a list of answers; the program generates a crossword puzzle automatically. Alas, the automatic word-placement feature creates a pretty skeletal puzzle, with far too many black squares. The

the puzzle diagram (and you can't zoom in). Otherwise, if you're earnest about actually getting your own puzzles published, Crossword Publisher definitely isn't for squares.

Hangmen

What do you suppose is the most-programmed shareware concept on earth? Screen savers? Space shoot-'em-ups? Well, I think it's Hangman. America Online's libraries list 67 different versions, with names from HyperHang to Execution 1.0.

I won't bother recapping the premise of this game, in which you guess the letters of a mystery word, bringing your on-screen alter ego one step closer to a grisly death with every wrong guess. The best versions are the colorful HangMan Plus 3.0 (by Ken Winograd, \$10 requested), with its 21 mystery-word categories; the graphically uninspired but quadrilingual Hangman 1.4.1 (by Ola Montán, free); and the gorgeously painted, sound-enhanced Wild West Hangman (by Mike Radosevich, \$10 requested).

Anagrams 1.2

An anagram is a phrase created by scrambling the letters of another phrase. We at *Macworld magazine*, for example, are either an "amazing lame crowd" or a "magical warm dozen," depending on how you look at it. Or you might discover the secret submessage in the term *information superhighway*: "New utopia? Horrifying sham!"

For years the reigning Macintosh anagram program was Chuck Grissom's Karma Manager (\$7). Meet the new champion, a polished, screamingly fast \$15 shareware item with a genuine Mac interface: Anagrams, by Andrew Trevor and Nick Spencer.

You type in a phrase—your name, for example—and this program spews out thousands of English phrases, or pseudo-phrases, composed of those rearranged letters. It offers several clever methods of weeding out junky nonsense phrases, making it much easier for you to locate the meaningful ones. You could make a living from this hilarious program, walking through the subway system and revealing the hidden meanings in peoples' names for \$5 apiece. These programs, like all the shareware mentioned here, are available in *Macworld's* eWorld and America Online forums.

Puzzle Power CD-ROM

A word-nerd bonanza: five puzzle-creation programs all on one CD (Centron Software Technologies, 910/215-5708; \$59.95). There's one program each for

creating crosswords, word-search puzzles, crisscrosses (these are like crosswords, but simpler and without the black squares), quote falls (something like acrostics, if you know what they are), and cryptograms (crack the scrambled-alphabet code, read the secret message). As a bonus, you get 500 *New York Times* crossword puzzles to solve electronically. (Be sure to call for your free upgrade if you use System 7.5 or later.)

At first, you suspect you've been stuck with some poorly executed port from a DOS edition: the screen goes white; the windows don't have scroll bars, close boxes, or title bars; and everything is as slow as molasses to start up. Fortunately, the programs are pretty good anyway. There are options aplenty—for font, size, format, and so on—and you can both create and solve the puzzles. A thesaurus shows you every word that might fit a particular crossword answer; you can search for, say, *DR*G* to learn that either *drug* or *drag* would fit. That's a powerful time-saver in both creating and solving.

Think of Puzzle Power as, say, Microsoft Works: yes, you could buy a better stand-alone program than each module in the collection. But the value is high, the programs are OK, and you get it all served up to you on one silver platter.

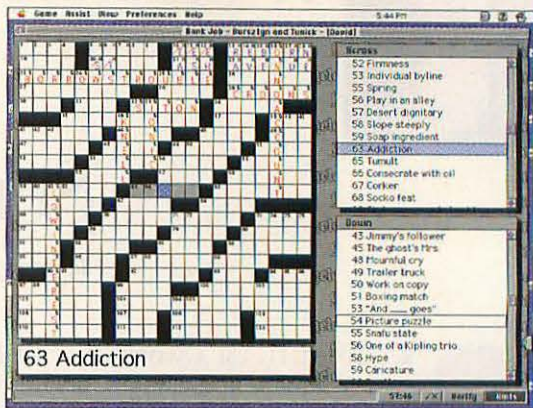
TFCrossword Fonts 12.0

If you think that those automatic puzzle-making programs take the good healthy suffering out of being a cruciverbalist (a crossword designer), consider the slightly lower-tech method of TFCrossword Fonts (Treacyfaces, 203/389-7037; \$89.95). It's a font. Each key-press produces an empty, numbered crossword square (the numbers in the set go from 1 to 180); of course, you can also make a little black square and a little white one.

Actually, you get two fonts—there's also a Solution font, featuring actual letters inside little squares (so you can publish the answer). All the little boxes overlap precisely, permitting you to create a terrific-looking puzzle in any word processor or page-layout program. (Actually, it's *three* fonts—a font for bridge-game scenarios comes on the same disk.)

Scrabble 1.0

Before I opened this software box, I tried to guess how the programmers would get around the Great Electronic Scrabble Conundrum: how do you computerize a game in which you can't see the letter tiles



Puzzling Times in L.A. LA Times Electronic Crossword Puzzles is polished and electronically enhanced. If you're insecure, you can ask the program to indicate incorrectly filled squares.

on your opponents' racks? I mean, in the electronic version, is everybody's Scrabble rack in full view of everybody else? Or do you play this game with multiple monitors? MacPlay really hasn't solved that one (800/969-4263, \$19.95—cheap!). You *can* ask it to hide your opponents' letters while it's your turn. Trouble is, then they can't see their letters either, and thus they can't be working on their next moves, as they would in a real game of Scrabble. The conundrum lives on.

Unfortunately, that isn't Scrabble's only problem. The playing board is microscopic and unresizable—much too tiny to display the bonus indications ("Double word score") right on the squares, as in the real game. And when you play against the computer, its built-in, ridiculously complete Scrabble dictionary guarantees that you'll lose; in my first game, the Mac's first five plays were *ixia*, *aa*, *kues*, *fens*, and *fugs*. The program can show you their definitions, so technically it's not cheating. But *fugs*?! Come on.

The Upshot

Some pursuits make the transition to electronic simulations better than others; golf, airplanes, and Scrabble, for example, are more fun in the real world. Crossword puzzles and their ilk, on the other hand, are much better on screen than on paper—especially when it comes to composing them.

Put more word games into your life; as the Anagrams program so aptly puts it, when you play *word games*, you "do raw gems." And if that seems a bit of a poetic stretch, well, hey—*The Desktop Critic* is, after all, the "poetic stretch kid." **m**

DAVID POGUE, an "avid Duo peg," is the author of *Macs for Dummies* ("some fad, Mr. Musci!") and *Macworld Mac FAQs* ("Mr. Q, of CAD/CAM laws"). Both are from IDG Books ("go sob, kid") Worldwide.

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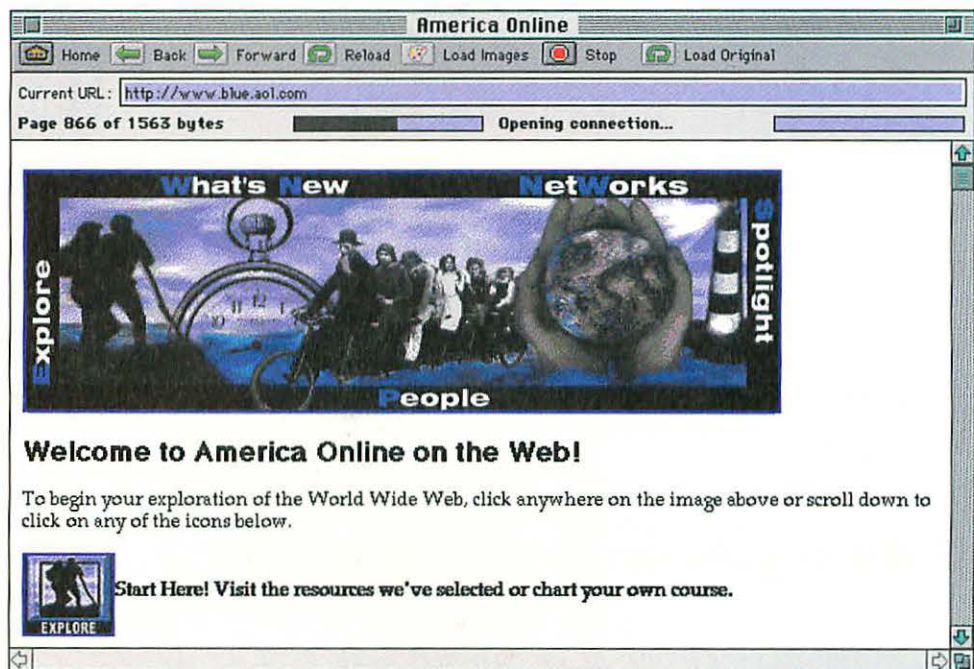
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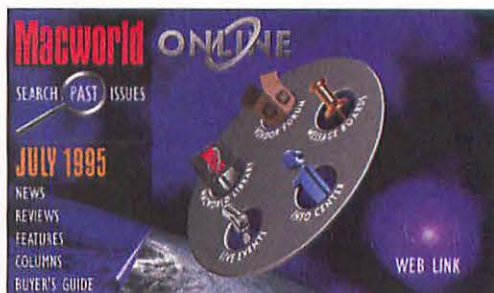
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Shopping for CD-ROMs

Where to find the best prices on multimedia software

HOW WOULD YOU FEEL about spending \$30, \$50, or even \$100 more than you need to for a CD-ROM title, but getting absolutely nothing extra for your money? Call it a wild guess, but I'd be willing to bet you're not too keen on that concept. The next time you buy CD-ROM software, however, that's exactly what could happen—if you don't spend a little time comparing prices.

Last year, some 10,000 CD-ROM programs were released for Macs and for Windows PCs. With so many titles now available, CDs are sold practically everywhere. Aside from computer stores and mail-order services, you can find titles in consumer electronics stores; book, video, and music stores; book-of-the-month clubs; Wal-Marts and discount warehouse outlets; even some grocery stores and convenience marts. Meanwhile, the CD-ROM specialty shop has emerged—Interact (818/578-7282, 800/479-1323) in Pasadena, California, and CD-ROM World (402/434-2904) in Lincoln, Nebraska, are among a handful of new stores that sell nothing but the shiny computer discs. And, of course, you can order CDs online from a number of retailers on the World Wide Web, America Online, CompuServe, and other services.

Because there are so many ways to buy CD software, prices are all over the map. Case in point: Microsoft's estimated street price for Encarta '95 for the Mac is \$99.95. But at least two retailers—Waterstone's Books & Music in Chicago, and a Blockbuster Video in San Francisco—recently charged \$139 for the encyclopedia. At the same time, a New York-based mail-order distributor with a World Wide Web site, Ellison's CD-ROM Kiosk (212/757-3015, 800/757-3015; <http://www.mordor.com/ellison/cdkiosk.html>), was charging just \$39.95 for Encarta—a savings of nearly \$100 from what both Waterstone's and Blockbuster charged.

Armed with a list of five leading CD titles, to find the best selection and prices I called or visited 25 retailers who sell CD software. Here's what I discovered.

Mail Order

For one-stop CD-ROM shopping, start with a trip through the Educorp catalog. With some 1300 Mac and Windows titles, Educorp (619/536-9999, 800/843-9497) has one of the widest CD selections available—everything from shareware to Shakespearean tragedy.

While Educorp is not always the low-price leader, its prices generally compare favorably with those of its mail-order and retail-store competition. Educorp's \$29.95 price for Live Oak Multimedia's Four Paws of Crab Thai cookbook was the lowest I found anywhere. In addition, Educorp was selling Broderbund's Myst for \$47.95—\$7 less than the \$54.95 you'd pay at Mac Zone (800/248-0800) or Tiger Software (800/666-2562). Instant-gratification seekers should probably consider

achusetts, you'd spend \$108.95 for Encarta and \$58.50 for Myst, compared with \$59.99 and \$37.99, respectively, at CompUSA in San Bruno, California. What's more, Electronics Boutique, Software Etc., Learningsmith, and Walden-software stores often charge prices that are the same as, or even higher than, the manufacturer's suggested retail price. You might possibly find lower prices at a Costco or Price Club, but good luck finding the Macintosh CD you want in a warehouse store.

Online Services

For the most consistently competitive prices on CD-ROMs, check out Ellison's CD-ROM Kiosk on the World Wide Web. This mail-order distributor's Web site listed the lowest prices on four of the five titles I shopped for.

(The Web site lists primarily Windows titles, but Ellison's sells many Macintosh CDs as well.) You can order CDs from Ellison's online or over the phone.

In contrast, America Online's Online Bookstore charged some of the highest prices anywhere, and Computer Express, a shopping service on CompuServe and AOL, offered little if any discount off the CD's list price.

It All Adds Up—Quickly

If you're not convinced that doing a little homework before buying a CD can pay off, consider this: The five

discs I shopped for would have cost me a total of \$355 had I paid top dollar for each and \$182 had I bought them all at the lowest prices. By shopping around, I saved \$173. Now *there's* a concept anyone could love.—JAMES A. MARTIN

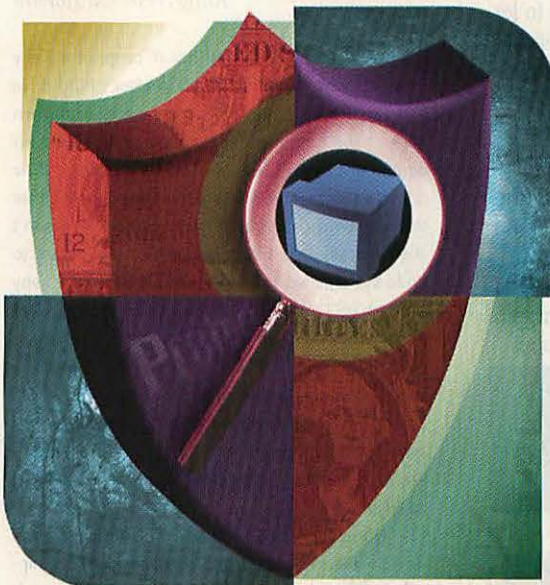
Retail Stores

High-volume computer stores with a large selection of products, such as the national chain CompUSA (800/266-7872), are often your best bet when it comes to shopping for CD-ROMs in a store. As a rule, their prices are lower than what you'd pay at other retailers. For instance, at Cybersmith, a new-media/virtual-reality store in Cambridge, Mass-

Letters

Hard drive MIA After a System 7 error caused the loss of some important files on my hard drive, I contracted Total Recall of Colorado Springs to recover the data. I am dissatisfied with its

continues





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work and feel the company violated what was advertised.

Total Recall sent the recovered data with a notice describing the recovery. On this notice was a statement saying that Total Recall would absorb the original drive [into inventory] unless I sent a fax requesting the return of the drive. Unfortunately, I did not notice this statement, and Total Recall representatives never mentioned the policy to me during our phone conversations. The original service agreement did not mention it.

I could not open the recovered files Total Recall returned to me. I contacted Kelly Leopard at Total Recall, who said he would try again. I called periodically to check the recovery's progress, and finally—five months after initially sending in the drive—was told that the drive had been shipped back to me. I never received the drive, and upon calling again, I was told that my drive had been absorbed into inventory. Total Recall received payment for the recovery in full. I have no recovered data and no original drive for further recovery attempts. One of the four main points in Total Recall's advertisement was no recovery, no fee.

Steve Fleischer
 Ridgecrest, California

Macworld contacted Total Recall proprietor Kelly Leopard, who confirmed that Fleischer's hard drive had either been absorbed into inventory or thrown away. "The customer has two weeks to request his equipment back," Leopard told Macworld. "If he doesn't ask for it back within two weeks, we either throw it away or absorb it into inventory. We don't automatically ship it back because we don't want to go to the expense. If a customer doesn't want it, why send it back?" When asked to explain "absorbed into inventory," Leopard said simply, "We don't keep track of the drives. We put it on a shelf. It's physically impossible to keep track of that equipment." He asserted that other data-recovery companies he's aware of have similar policies, and that Total Recall's was stated on two of the three forms that were sent to Fleischer.

None of the papers Fleischer forwarded to Macworld—a work order, a sales letter, packing and shipping instructions, and a service agreement—mention this policy.

The payment section of the service agreement Fleischer received reads, "Total Recall will pay the return shipping of the defective media UPS ground as long as the evaluation fee has been paid in advance. Any other form of return shipping must be paid for by the customer. Recovered data is always sent for next-day delivery."

Leopard sent Macworld a service agreement slightly updated from the one Fleischer received in September 1994. One difference is this statement, printed in boldface type: "You have five (5) business days from receipt of data to verify the recovery. All requests for original equipment must

be done so in writing and faxed to us. We will not be responsible for equipment after 14 days." Of the differences between the policies, Leopard said only, "We do modify our sales agreements from time to time."

None of the other data-recovery companies Macworld contacted have a similar policy. John Pence, president of OnTrack Data Recovery in Eden Prairie, Minnesota, said OnTrack always returns the drive to the customer. "If the drive is under warranty, customers can often send the drive back to the manufacturer," he explained. Pence said his company occasionally purchases unique drives from customers to salvage usable parts.

Scott Gaidano, president of DriveSavers (based in Novato, California), said that customers always get their drives back. "When customers say they don't want their drives back, we verify it in writing and sometimes dispose of [the drives] with a salvage company," Gaidano said.

Paul McGraw, president of APS in Kansas City, Missouri, told Macworld that old drive parts such as heads, platters, and motors can be sold or reused. Hard drive companies routinely sell used or old hard drives to salvage companies, who then sell the drives as refurbished units. Leopard told Macworld that Total Recall has never sold any customer's equipment to a salvage company.

When a Macworld staffer called Total Recall posing as a customer, she was told the company always returns customers' media to them. "You call us to verify that the recovery is OK. Your drive will be returned to you in the same condition in which it was received," the salesperson told Macworld. "The drive will be shipped back to you no matter what," usually within five days of the recovery.

Kelly Leopard was at a loss to explain this discrepancy. "That's not our policy," he said. "I find that incredibly hard to believe."

The Better Business Bureau of Colorado shows that Total Recall is a company in good standing.

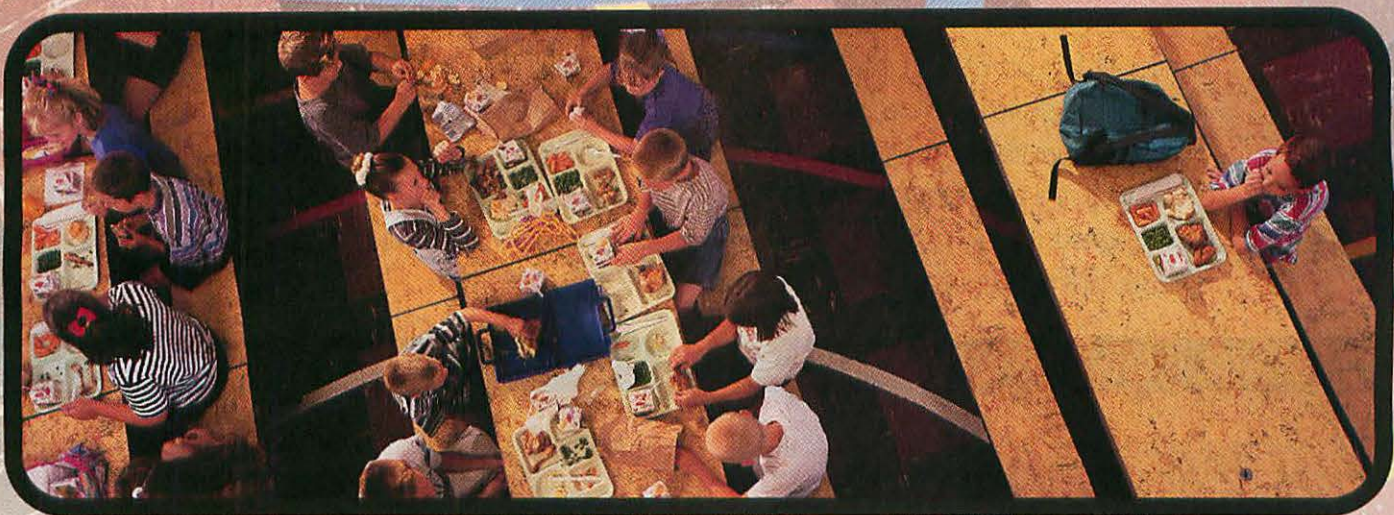
What can a consumer learn from Fleischer's experience? With some services—your local TV-repair shop or your dry cleaner, for example—the company may legally keep or dispose of your belongings if they're not retrieved after a specified period of time. If you use a data-recovery service, make sure to find out how to retrieve your equipment if you want it back—especially if the product is under warranty, in which case the product's manufacturer may be able to replace or repair the unit.

—Joanna Pearlstein **m**

JAMES A. MARTIN, formerly editor of Macworld's Graphics section, writes about CD-ROM hardware and software for Macworld, PC World, and other publications.

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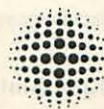
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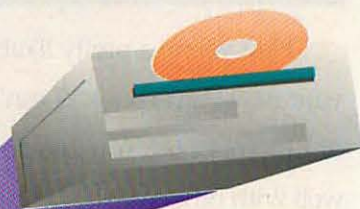
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- ☐ 45. Training/Personnel Specialist
- ☐ 46. Video/Film Editor
- ☐ 47. Videographer
- ☐ 48. Other
- ☐ 49. Does not apply

SIZE OF YOUR ORGANIZATION?

- (Check one)
- ☐ 50. Under 100
- ☐ 51. 100 - 499
- ☐ 52. 500 - 999
- ☐ 53. 1,000 - 4,999
- ☐ 54. Over 4,000
- ☐ 55. Does Not Apply

MW

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If throwing away a beautiful print pains you,
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Every time you send out for a color print and decide not to use it, you kill off a little bit of your profit. Just because you know the value of tweaking. Just because your client demands a continuous tone, dye sublimation comp. Just because you're doing your job.

But if you had a Professional ColorPoint 2, you wouldn't have to sacrifice profit for quality. Because it's actually two printers in one. Use the economical thermal wax transfer mode, and tweak comp after comp for about a buck a piece. Then, when you're ready to show your client, switch to dye sublimation mode and output beautiful, photorealistic prints for less than half of what you'd pay a service bureau.

The Professional ColorPoint 2 has a large print area which allows for full-bleed letter and

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Adobe PostScript

ded Adobe's PostScript level 2 software, and supports the color management system that you need. What's more, it comes with an internal hard disk and all the RAM you need to output gorgeous, 4-color, full-bleed prints right out of the box.

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SII 
Seiko Instruments

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Editors' Choice

THE BEST PRODUCTS FEATURED IN MACWORLD

Edited by Patricia Carberry-Harris

Macworld Editors' Choice is a complete listing of the hardware and software products selected as the best of their type in *Macworld's* comparative articles. A ♦ next to a product indicates that we chose more than one product in that category. A Ⓢ next to a product listing indicates that a native Power Mac version is available.

Hardware

MONITORS

17-INCH MONITORS, Oct 95

17B; Philips Consumer Electronics, 800/835-3506; \$899.

SMALL COLOR MONITORS, Jan 94

14-inch display: ♦ Sony CPD 1430; Sony Corp. of America, 800/222-7669; \$779.95.

♦ Nanao FlexScan F340i•W; Nanao USA, 800/800-5202; \$799.

15-inch display: NEC MultiSync 4FG; NEC Technologies, 708/860-9500; company's estimated price \$755.

TWO-PAGE COLOR MONITORS, Nov 94

PressView 21 Display System; SuperMac Technology, 408/541-6100; \$3999.

NETWORK HARDWARE

REMOTE-ACCESS SERVERS, Oct 94

Mixed networks: NetConnect Remote Access Server; Asanté Technologies, 408/435-8401; \$3899 for eight ports.

AppleTalk networks: ARA Multiport Server; Apple Computer, 408/996-1010; four ports \$1799, eight ports \$3298.

PRESENTATION HARDWARE

PORTABLE PRESENTERS, Jan 95

Z115; nView, 804/873-1354; \$5495.

PRINTERS

COLOR BUSINESS PRINTERS, Sep 95

Tektronix Phaser 340; Tektronix, 503/682-3411; \$5590.

DYE-SUBLIMATION PRINTERS, Jul 94

Prepress proofing—tabloid size/fastest: Phaser 480; Tektronix, 503/682-7377; \$14,995.

Prepress proofing—tabloid size/most complete: Rainbow; 3M, 612/733-1110; company's estimated price

\$20,000.

Prepress proofing—letter size: ProofPositive Full Page; SuperMac Technology, 408/541-6100; \$7999.

General publishing and business: Phaser IISDX; Tektronix, 503/682-7377; \$9995.

PERSONAL PRINTERS, Sep 94

Ink-Jet: DeskWriter 520; Hewlett-Packard, 800/752-0900; \$365.

Laser—\$1000 to \$1600: microLaser Pro 600; Texas Instruments, 214/995-6611; \$1599.

WORKGROUP PRINTERS, Jun 95

Tabloid-size printers: LaserJet 4MV; Hewlett-Packard, 208/323-2551; \$3549.

Legal-size printers: ♦ Optra Lx; Lexmark, 606/232-2000; \$3298.

♦ LaserWriter 16/600 PS; Apple Computer, 408/996-1010; company's estimated price \$2299.

SCANNERS/IMAGE CAPTURE

PROFESSIONAL REAL-TIME FILMLESS CAMERAS, Sep 95

Fujix DS-515/Nikon E2; Fuji, 914/789-8100; Nikon, 516/547-4200; \$12,780; with optional lens and PC Card \$14,140.

HIGH-BIT FLATBED COLOR SCANNERS, Mar 95

♦ Arcus II; Agfa, 508/658-5600; \$3495.

♦ PowerLook; Umax, 510/651-8883; \$3495.

LOW-COST COLOR SCANNERS, Nov 93

\$1300 to \$1600: ♦ La Cie Silverscanner II; La Cie, 503/520-9000; \$1599. ♦ Hewlett-Packard ScanJet IIc; Hewlett-Packard, 800/752-0900; \$1599.

Under \$1300: Mirror 800 Plus Color Scanner; Mirror Technologies, 612/633-4550; \$1299.

OCR, Nov 93

OmniPage Professional; Caere Corp., 408/395-7000; \$995. Ⓢ

SYSTEMS/STORAGE

1.3GB OPTICAL STORAGE, Dec 94

Best low-cost solution: 1.3Gig MO; Club Mac, 714/768-8130; \$2099.

Best overall performance: Genesis 1300; Microtech, 203/468-6223; \$2899.

DOS/WINDOWS CARDS, Sep 95

Most 040 Macs: DOS on Mac; Reply, 408/942-4804; 50MHz model \$590; 66MHz model \$690.

Most Power Macs: OrangePC Model 220; Orange Micro, 714/779-2772; \$1217 direct price.

Occasional Windows Access: Timbuktu; Farallon Computing, 510/814-5100; \$199 per user.

HIGH-PERFORMANCE DRIVE SYSTEMS, Jul 95

Accelerator card: SiliconExpress IV; Atto Technology, 716/691-1999; \$995.

Drive mechanism: IBM UltraStar series; IBM (available from several resellers); prices vary by reseller.

QUAD-SPEED CD-ROM DRIVES, Jun 95

APS T3501; APS Technologies, 816/483-6100; \$299.95.

RAID STORAGE SYSTEMS, Apr 95

RAID 3 or 5: MR/5 RAID; MegaDrive Systems, 310/247-0006; \$18,840.

RAID 0: ♦ Joule RAID; La Cie, 503/520-9000; \$2999. ♦ DiskKover 8200W; Optima Technology, 714/476-0515; \$7790. ♦ SledgeHammer 2000FMF; FWB, 415/474-8055; \$2359.

SYSTEM UPGRADES, Feb 95

Upgrade for Macintosh Quadra 650, 800, or 950: Power Macintosh Upgrade Card; Apple Computer, 408/996-1010; \$699.

Upgrade for other 680X0 Macs: Replace with Power Macintosh 6100/60 with CPU booster and cache card. Power Macintosh 6100/60; Apple Computer, 408/996-1010; \$1819 (base system with 8MB of RAM). PowerClip (CPU booster); Newer Technology, 316/685-4904; \$245. 256K cache card; various companies, roughly \$200.

VIDEO/DISPLAY

24-BIT VIDEO CARDS, Apr 94

Inexpensive acceleration: PrecisionColorPro 24XP; Radius, 408/434-1010; \$599.

Full-featured acceleration: Thunder II GX•1360; SuperMac Technology, 408/541-6100; \$4499.

DIGITAL-VIDEO BOARDS, Aug 95

SpigotPower AV; Radius, 408/434-1010; \$999.

HIGH-END VIDEO EDITING, Jun 94

Presentation video: ♦ MoviePak2 Pro Suite; RasterOps, 801/785-5750; \$4199. ♦ VideoVision Studio; Radius, 408/434-1010; \$4499.

Corporate video (offline): Media Composer 400s; Avid Technology, 508/640-6789; \$14,995.

Corporate video (online): VideoCube; ImMix, 916/272-9800; \$40,500.

continues

Editors' Choice

PHOTOSHOP ACCELERATORS, Apr 94
PhotoBooster; Radius, 408/434-1010; \$999.

Software

ACCOUNTING/FINANCE

GROWING A SMALL BUSINESS, Nov 93
Small-business system: M.Y.O.B.; Best Ware, 201/586-2200; \$199.
Home office/personal finance: MacMoney; Survivor Software, 310/410-9527; \$119.95.

BUSINESS TOOLS

PORTABLE-DOCUMENT SOFTWARE, Apr 95
Document Distribution: Common Ground 1.1; No Hands Software, 415/802-5800; \$189.95.

STATISTICS, Oct 93
Exploratory data analysis: DataDesk 4.1; Data Description, 607/257-1000; \$595.
Comprehensive package: SYSTAT 5.2.1; SYSTAT, 312/329-3500; \$895.

COMMUNICATIONS/NETWORKS

COMMUNICATIONS SOFTWARE, Aug 94
Basic connectivity: ZTerm; David P. Alverson (no phone number available); \$30.
Terminal emulation: Crosstalk for Macintosh; Digital Communications Associates, 404/442-4000; \$195.
Internet exploration: VersaTerm; Synergy Software, 215/779-0522; \$125.

DOS WINDOWS EMULATION, Oct 94
Timbuktu Pro 1.0.3 for Macintosh, Timbuktu 1.1 for Windows; Farallon Computing, 510/814-5000; \$199 each.

INTERNET BROWSERS, Oct 95
Netscape Navigator; Netscape Communications, 415/528-2555; \$39.

NETWARE CONNECTIVITY, Sep 93
NetWare for Macintosh; Novell, 801/429-7000; \$495 for 5-user license, to \$2295 for 200-user license.

PROTOCOL ANALYZERS, Jul 94
EtherPeek; AG Group, 510/937-7900; \$795.

TERMINAL EMULATOR, Oct 93
VersaTerm; Synergy Software, 215/779-0522; \$149.

GRAPHICS

3-D MODELING, Dec 94
Stand-alone modeler: formZ; Autodesk, 614/488-9777; \$1495.
Integrated-modeling package: Strata StudioPro; Strata, 801/628-5218; \$1495.
Entry-level modeler: Infini-D; Specular International,

413/253-3100; \$695.

CLIP ART'S GREATEST HITS, Jan 94
Overall collection: ClickArt Studio Series; T/Maker Company, 415/962-0195; \$99.95 per volume.
❖ Electronic Clipper subscription service; Dynamic Graphics, 800/255-8800; \$67.50 per month.
❖ Images with Impact series; 3G Graphics, 800/456-0234; \$99.95 to \$129.95 per volume, CD-ROM \$499.
❖ Metro ImageBase Electronic Clip Art; Metro ImageBase, 800/525-1552; \$74.95 per volume, CD-ROM \$149.95.
❖ Typographers' Ornaments; Underground Grammarian, 609/589-6477; \$25 per volume; ten TIFF albums \$200; EPS volumes \$50 each.

DRAW PROGRAMS (LOW-COST), Sep 93
Budget draw: Expert Draw; Expert Software, 305/567-9990; \$49.95.
Budget draw/paint: UltraPaint; Deneba Software, 305/596-5644; \$79.
Beginners' program: Aldus SuperPaint; Aldus Consumer Division, 619/558-6000; \$149.95.
Overall: Canvas; Deneba Software, 305/596-5644; \$399.

FONT BUYERS' GUIDE, Mar 94
Text-face collection: Type On Call CD-ROM; Adobe Systems, 415/961-4400; \$99 (this price includes the ability to unlock two families from preselected packages); an additional \$25 enables you to unlock individual faces, or \$69 to \$179 for unlocking families.
Display/decorative-face collection: Fontek; Letra-set, 201/845-6100; \$39.95 per face.
Bargain collection: Monotype ValuePack; Monotype, 312/855-1440; \$89 for 57 fonts.

IMAGE DATABASES, Oct 93
❖ Aldus Fetch 1.0; Adobe Systems, 206/628-5739; \$295.
❖ Multi-Ad Search 2.0; Multi-Ad Services, 309/692-1530; \$249.

IMAGE EDITORS, Feb 95
Adobe Photoshop 3.0; Adobe Systems, 415/961-4400; \$895.

INTEGRATED SOFTWARE

INTEGRATED SOFTWARE, Feb 94
ClarisWorks; Claris, 408/727-8227; \$299.

ONLINE SERVICES

ONLINE SERVICES, Aug 94
E-mail: America Online; America Online, 703/893-6288;

Vendors: Please write to *Macworld Editors' Choice*, 501 Second St., San Francisco, CA 94107, or send a fax to 415/442-0766 to inform us of changes in your phone number or your product's list price.

basic monthly fee \$9.95.
Reference: CompuServe; CompuServe Information Service, 614/457-0802; basic monthly fee \$8.95.

ORGANIZATION/PRODUCTIVITY

GRAPHING SOFTWARE, Aug 94
DeltaGraph Pro 3 3.0.4; DeltaPoint, 408/648-4000; \$195.

SALES-AUTOMATION SOFTWARE, Oct 93
❖ Contact Ease; WestWare, 619/274-5053; one user \$395, five users \$1495.
❖ CBS; Colleague Business Software, 512/345-9964; \$495.

TEXT-RETRIEVAL SOFTWARE, Dec 93
Small system: On Location; On Technology, 617/374-1400; \$129.
Multiuser system: Personal Librarian; Personal Library Software, 301/990-1155; \$995.

PRESENTATION TOOLS

PRESENTATION SOFTWARE, Jul 94
Persuasion 3.0; Adobe Systems, 206/622-5500; \$495.

UTILITIES

BRAVE NEW DOCUMENTS, Jan 94
Application-independent document distribution: Common Ground; No Hands Software, 800/598-3821; \$189.95.
Book-length documents: FrameReader; Frame Technology, 800/843-7263; \$84.95.

PRINTING, Sep 93
PC-printer cable packages: PowerPrint; GDT Softworks, 604/291-9121; \$149.

VIRUS KILLERS, Jul 94
Commercial software: Virex; Datawatch, 919/549-0711; \$99.95.
Free software: Disinfectant; free from various online services.

VIRTUAL MEMORY SOFTWARE

VIRTUAL MEMORY, Jun 94
Virtual memory software: Virtual 3.0; Connectix, 415/571-5100; \$99.
Memory-boosting software: RAM Doubler 1.0.1; Connectix, 415/571-5100; \$99.

WORD PROCESSORS

HIGH-END WORD PROCESSOR (for fast 68040 Macs and Power Macs), Mar 95
Microsoft Word 6.0; Microsoft, 206/882-8080; \$325.

LOW-COST WORD PROCESSOR, Mar 95
MacWrite Pro; Claris, 408/727-8227; \$99.

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Our Accel-a-Writer® 8200 has been getting a lot of attention lately. In fact, some of the industry's top magazines and analysts have had a great deal to say about our high-resolution laser printer. MacUser™ awarded it a four-and-a-half mouse rating. BYTE declared it the best Mac printer for CAD/DTP. MacWEEK awarded it four diamonds. And recently, MacUser gave the Accel-a-Writer 8200 the ultimate seal of approval—the prestigious “Eddy” award, naming it “Best New Monochrome Printer of the Year.”

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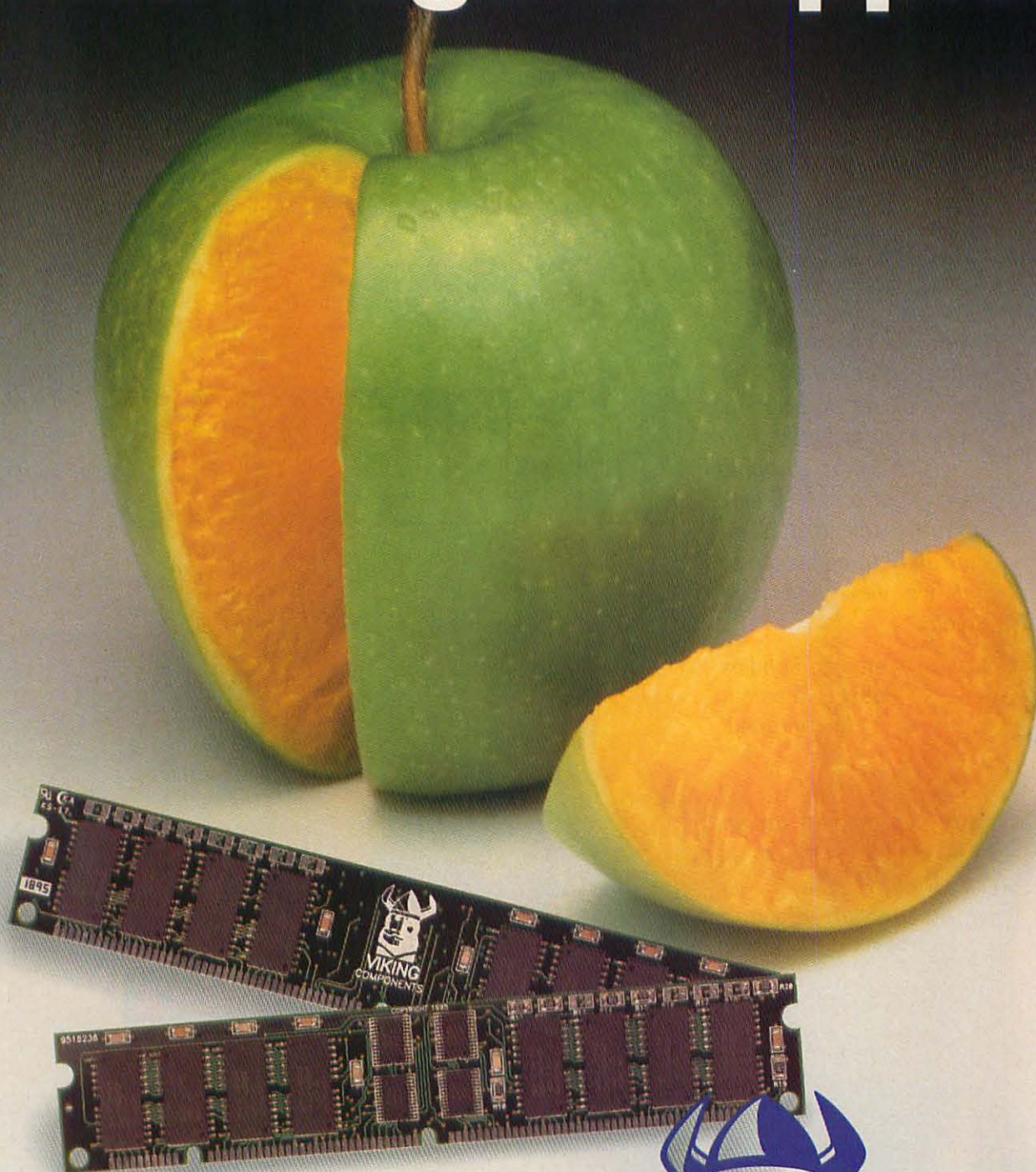
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Star Ratings

HARDWARE AND SOFTWARE REVIEWS AT A GLANCE

Edited by Wendy Sharp

Macworld Star Ratings lets you compare Macintosh products by providing summaries of *Macworld's* authoritative product reviews from the past year. The number of stars indicates quality; our reviewers assign five stars to outstanding products and one star to poor ones. The  symbol indicates that a product is available in a native Power Mac version.

If a product has been upgraded since our last review, the most recent version number supplied by the vendor appears in parentheses after the reviewed version number. To read a full review of any product in the listing, please consult the issue listed at the end of each synopsis.

Vendors: Please write to *Macworld Star Ratings*, 501 Second St., San Francisco, CA 94107 to inform us of changes in the version number or list price of your product, or of changes to your phone number.

Software

BUSINESS TOOLS

- ★★ **Adobe Acrobat 2.0**, Adobe Systems, 415/961-4400, \$195. The font fidelity of this portable-document software is uneven, and the software demands too much in resources compared with other options. Mar 95
- ★★★★ **Adobe Acrobat for Workgroups 2.0**, Adobe Systems, 415/961-4400, \$1595. As a collaboration tool, this software is inexpensive and offers well-done annotation tools. However, it's resource-intensive, and creating hypertext documents with it isn't easy. Mar 95
- ★★★★ **BizPlan Builder 5.0**, Jian, 415/254-5600, \$129. To create a comprehensive business plan, just fill in the blanks in this easy-to-use spreadsheet/word processor template. Jun 95
- ★★★★ **Business Plan Writer 6.0**, Graphite Software, 301/984-1100, \$99. This proposal-writing template can help entrepreneurs create a detailed business plan, but—unlike the competition—it won't help them format an attractive presentation. Jun 95
- ★★★★ **CA-Cricket Graph III 1.52 (1.53)**, Computer Associates International, 516/342-5224, \$129. Graphing software's features are just right for charts in the physical and social sciences, but lack pizzazz. The program is easy to learn and use, and includes math features for data transformations and curve fitting. Dec 94
- ★★★★ **ClarisWorks 3.0**, Claris Corp., 408/727-8227, \$129. Inexpensive, easy to use, and powerful integrated software is the best package available. It's far better in terms of features, speed, integration, and use of system resources than its competition. Feb 95
- ★★★★ **Equate 1.0**, Holosoft, 408/748-9648, \$99. Newton spreadsheet allows you to import Microsoft Excel files, but you'd have to be very patient to set up stand-

alone worksheets. Oct 95

- ★★★★ **Helix Express 3.03**, Helix Technologies, 708/465-0242, \$589. Latest release of this visually-oriented database adds speed and features—including conditional branching capabilities and improved forms-drawing tools—without raising RAM requirements. Sep 95
- ★★★★ **InfoDepot 2.0 (2.3)**, Chena Software, 610/770-1210, \$295. Project-planning program includes tools for brainstorming and organizing ideas; scheduling project steps; and entering, calculating, and presenting data. It does a good job but has some flaws. Jan 95
- ★★★★ **MapInfo 3.0**, MapInfo, 518/285-6000, \$1295. Versatile mapping program lets you geocode the geographical data in a database, conduct spatial analyses, and create presentation graphics. Oct 95
- ★★★★ **MarcoPolo 3.0**, Mainstay, 805/484-9400, \$895. Full-featured document-management system is significantly improved. The addition of OCR—both the handling of unrecognized words and the ability to batch-process TIFF files with OCR—make it very usable. Jan 95
- ★★★★ **Microsoft Excel 5.0**, Microsoft Corp., 206/882-8080, \$339. Although the feature set of this Power Mac spreadsheet is stunningly rich, the system requirements for a full install are jaw-dropping, including 27MB of hard drive space plus 24MB of RAM without virtual memory. Still, it is relentlessly complete. Jan 95
- ★★★★ **Microsoft Works 4.0**, Microsoft Corp., 206/882-8080, \$99.95. Although this isn't the best integrated package around, it's a sensible, low-cost choice. It offers a respectable word processor, database, spreadsheet, calendar, and address book, as well as a slide-show module, and drawing and communications tools. Jan 95
- ★★★★ **PhoneDisc 95 PowerFinder**, Digital Directory Assistance, 617/639-2900, \$249. Now, where did you put Aunt Ida's phone number? Never mind, it's on this CD-ROM business/residential telephone directory (assuming the dear old thing doesn't have an unlisted number). Oct 95
- ★★★★ **Phyla 1.0.3**, Mainstay, 805/484-9400, \$495. While nonprogrammers can learn to use this object-oriented database, a little SmallTalk or C++ programming background wouldn't hurt. Aug 95
- ★★★★ **QuickFigure Pro 2.1**, PelicanWare, 503/221-1148, \$49.95. This Newton spreadsheet is fast, easy to use, and has a respectable set of functions. Oct 95

COMMUNICATIONS/NETWORKS

- ★★★★ **Apple Mobile Message System**, Apple Computer, 408/996-1010, \$549 plus \$19.95 per month. The medium for your messages can be a PowerBook, Windows notebook, or Newton with this multifaceted remote-messaging service. Keep in touch with a personal 800 number, voice and fax mailboxes, and an Inter-

net E-mail address. Sep 95

- ★★★★ **ASAP 1.5**, MicroBeam, 813/546-2727, \$695; \$795 with Windows client program. File-transfer operations can be a nightmare. Or they can be a dream with this convenient utility. It's easy to set up and its performance is first-rate. Sep 95
- ★ **BLAST Professional**, BLAST Inc., 919/542-3007, \$139. Our reviewer could not get this telecom software to work reliably and consistently during his tests, and found the minimalist and quirky interface frustrating. Jan 95
- ★★★★ **CreativePartner**, emotion Inc., 415/812-9000, \$1500. Creative collaboration goes digital with this distribution system for video, sound, text, and graphics. Although the system provides a clever way to send annotations over a network, our reviewer wished for either a higher number of features or a lower price tag. Jul 95
- ★★★★ **FileWave 2.1.2**, Wave Research, 510/704-3900, \$895. Maintain a central repository of files and distribute application updates to LAN users with this easy-to-use software-distribution tool. Excellent features include file distribution during idle time and the ability to copy-protect transferred files. Jul 95
- ★★ **HoloGate 1.0**, Information Access Technologies, 510/704-0160, \$500. Two unique features—UUCP and Usenet news distribution—are the primary reasons to consider this product. Otherwise, it comes up price-rich and feature-poor. Apr 95
- ★★ **The Internet Companion**, The Voyager Company, 914/591-5500, \$29.95. Well-written, HyperCard-based electronic book offers less information than others. Internet access is available through accompanying software, but it's a terminal-emulation screen. Dec 94
- ★★★★ **Internet Explorer Kit and Internet Starter Kit**, Hayden Books, 317/581-3500, \$29.95 each. Well-written books and useful software combine to produce one of the best introductions to the Internet available for Mac users. Dec 94
- ★★★★ **Internet Membership Kit 1.0 (2.0)**, Ventana Media, 919/942-0220, \$69.95. If you need access to the Internet, this book and software combination is a good package. The best part about it is its included preconfigured software. Dec 94
- ★★★★ **Netscape Navigator**, Netscape Communications Corporation, 415/528-2555, \$39. World Wide Web browser is well ahead of the competition in terms of features, stability, and ease of use. Although its E-mail features could use some improvement, it's the best way to surf the Net. May 95
- ★★★★ **NetWorks 3.0.4**, Caravelle Networks Corp., 613/225-1172, \$1395 to \$2495. For networks that sprawl across buildings or states, this network-monitoring utility is an indispensable tool. It continually polls devices, checking CPUs, routers, printers, and hubs for signs of life. Apr 95

continues

Star Ratings

★★★★ **ProTerm Mac 1.0**, InTrec Software, 602/992-5515, \$129.95. This communications program offers a level of sophistication that belies its small size and ease of use. It's fast, reliable, and stable, and is suitable for simple BBS connections or sophisticated scripting. Jul 95

★★★★ **QuickMail 3.0**, CE Software, 515/221-1801, \$199 to \$3799. If you're shopping for a first-time E-mail application, this product is a good choice for ease of use and setup. The most promising new tool, rules-based messaging, lacks some important features. Jan 95

★★★★ **RunShare**, Run, Inc., 201/529-4600, \$199 to \$2499. System extension endeavors to pump up file-transfer speeds across networks. It offers twofold to threefold throughput gains for fast Macs and large files but is less useful with small files or slow Macs. Feb 95

★★★★ **Saber LAN Workstation**, Saber Software, 214/361-8086, \$199 plus \$49 per node. LAN-management package includes programs for network administration and remote software updating. Although it lacks some of the niceties of network-management software for other platforms, it's a useful tool for the price. Aug 95

★★★★ **Skyline/Satellite**, AG Group, 510/937-7900, 1-station pack \$795; 5-station pack \$1195; 10-station pack \$1995. Remote monitoring engines keep an eye on LAN traffic, using the Mac's Ethernet port. It's a great system, but for large LANs the price can go sky-high. Sep 95

★★★★ **Snatcher 1.0**, Software Ventures, 510/644-3232, \$49.95. FTP tool lets you connect to multiple sites simultaneously, transfer several files at once, and create scripts to automate repetitive tasks. Happily, you can continue to browse while downloading. Aug 95

★★ **TurboTalk 1.0**, Information Presentation Technologies, 805/541-3000, \$160 to \$495. This file-transfer utility may speed up your network operations, but with many configurations the improvement is negligible. Oct 95

DESKTOP PUBLISHING

★★★★ **Download Mechanic 1.0.2 (1.5)**, Acquired Knowledge, 619/587-4668, \$249. The strengths of this PostScript downloader lie in its tools for dealing with problem files, but when dealing with large files, it performs slowly and occasionally crashes. Feb 95

★★★★ **Let'er RIP 2.0 (2.0.1)**, Lupin Software, 916/756-7267, \$239. The flexibility, clean implementation, and attention to detail of this PostScript downloader make it a pleasure to use. Feb 95

★★★★ **PageTools 1.0**, Extensis Corp., 503/274-2020, \$129. Collection of ten PageMaker Additions is packed with utility. Many users will find the PageAlign, PagePrinter, and PageRulers Additions alone worth the price, and the others frosting on the cake. Dec 94

★★★★ **theTypeBook 4.0**, Rascal Software, 805/255-6823, \$59.95. The manual needs work, but this type-specimen generator provides enough customization options to make it a worthwhile purchase. Jun 95

EDUCATION/ENTERTAINMENT

★★★★ **3D Atlas 1.1**, EA World, 415/571-7171, \$79.95. Well-designed atlas enriches map data with narration, photos, and QuickTime movies. May 95

★★★★ **A.D.A.M. The Inside Story**, A.D.A.M. Software, 404/980-0888, \$79.95. Multimedia anatomy CD-ROM teaches basic anatomy and physiology with a tantalizing mix of sound, graphics, and animation. If you are the least bit interested in learning more

about how the human body works, buy this program. Mar 95

★★★★ **Aquazone 1.0**, Inago, 416/487-4005, \$59. The fish in this aquarium simulation are beautiful, but they're darned hard to keep alive. Only two varieties of fish are included. Jan 95

★★★★ **Crossword Wizard 1.0**, Cogix Corp., 415/454-7217, \$49.95. If you're a crossword fan, this crossword-puzzle generator is a must. Although it's not perfect, the play mechanics are fantastic. Dec 94

★★★★ **CyberBoogie**, Times Mirror Multimedia, 314/531-2503, \$49.95. The easy interface, bouncy songs, and cute graphics of this children's animation software make it a good choice for very young kids, but its relative lack of features restricts it to the same group. Apr 95

★★★★ **The Daedalus Encounter**, Virgin Interactive Entertainment, 714/833-8710, \$59.95. You've been blown to smithereens and your brain has been stuffed inside a robot. Don't you hate it when that happens? Escape from a doomed spacecraft in this interactive adventure. Sep 95

★★★★ **Digital Chisel 1.2**, Pierian Spring Software, 503/222-2044, \$199.95, site license \$995. If I had a Chisel, I'd Chisel out some quizzes; I'd say how easy this is—no I wouldn't. Ahem. What I mean is: this authoring tool lets educators create interactive quizzes, but suffers from a nonstandard interface. Jun 95

★★★★ **Kids World**, Bit Jugglers, 415/968-3908, \$30. Although the painting tools could be more robust, this screen-saver-creation tool for kids is easy to use, cleverly designed, and can keep kids busy for hours. Mar 95

★★★★ **The Lost Mind of Dr. Brain**, Sierra On-Line, 206/649-9800, \$44.95. A wise-guy rodent tries to trip you up as you solve a series of hilarious and challenging brainteasers. Oct 95

★★★★ **Material World**, StarPress Multimedia, 415/274-8383, \$59.95. This multimedia CD-ROM provides a fascinating look at diverse cultures from around the world by documenting the lives of average families. Jun 95

★★★★ **Math Workshop**, Broderbund Software, 415/382-4700, \$40. Youngsters can have some fun while learning math with this collection of math-related and problem-solving games. Six-to-nine-year-olds will enjoy activities like Rhythm Shop and Bowling for Numbers. Aug 95

★★★★ **Nile: Passage to Egypt**, Discovery Channel Multimedia, 301/986-1999, \$49.95. Armchair travelers will enjoy this CD-ROM-based cruise down the Nile. You can even keep a journal and take snapshots. Oct 95

★★★★ **Small Blue Planet 2.0 (2.0.1)**, Now What? Software, 415/885-1689, \$59.95. The satellite photos of this atlas are truly dazzling, although the interface is less than world class. May 95

★★★★ **Storybook Weaver Deluxe 1.0**, MECC, 612/569-1500, \$69.95. Hooray for applications that encourage kids to be creative! This one lets them combine pictures, sounds, and words to make their own storybooks. May 95

★★★★ **Theorist 2.0**, Waterloo Maple Software, 519/747-2373, \$299. Despite an occasionally odd interface (for example, a hammer icon), this symbolic-math program is a great learning aid for students. Jun 95

★★★★ **WarPlanes 1.0**, Maris Software, 800/336-0185, \$69. Wonderful multimedia CD-ROM tours the post-WWII era in military aviation. As well as pictures and text, it includes rotatable models of aircraft, an extensive database, and three flight simulators. Mar 95

★★★★ **Widget Workshop**, Maxis Software, 510/254-9700, \$44.95. Fiendishly clever mad scientist's

laboratory allows you to build Rube Goldberg-style widgets out of metronomes, switches, light bulbs, and much more. It encourages imagination and exploration, plus kids think it's cool. Apr 95

FINANCE/ACCOUNTING

★★★★ **M.Y.O.B. 5.0**, BestWare, 201/586-2200, \$139; \$239 w/payroll. A well-designed interface makes double-entry accounting easy enough for anyone to do. And—for those small-business owners who are keeping an eye on the bottom line—the price is right. May 95

★★★★ **Managing Your Money 7.0**, MECA Software, 203/255-1441, \$79.95 (floppy); \$99.95 (CD-ROM). Personal financial software's advanced investment features make it a good choice for sophisticated investors, while the CD-ROM's instructional articles are a plus for those who are new to computerized money management. Oct 95

★★★★ **QuickBooks 3.0**, Intuit, 415/322-0573, \$119. Full-featured double-entry accounting program is easy to use, but its operation is not entirely Mac-like and its cryptic error messages may cause you to ignore serious problems. Jun 95

★★★★ **Quicken 5.0**, Intuit, 415/322-0573, \$49.95. A calendar and new ease-of-use features keep this personal finance software comfortably ahead of the pack. This upgrade is an incremental, but still welcome, improvement over an already excellent product. Feb 95

★★★★ **StreetSmart 1.0**, Charles Schwab & Company, 800/334-4455, \$59. If Schwab is where you want your investments held, and if you want to have tighter control over your portfolio and to save on brokerage fees, you should seriously consider this financial investment software. Feb 95

GRAPHICS

★★★★ **Adobe Dimensions 2.0**, Adobe Systems, 415/961-4400, \$199. 3-D effects software has added color support, as well as drawing and text tools. Its ability to create resolution-independent 3-D images and map two-dimensional art earn Dimensions a place on a designer's hard drive. Apr 95

★★★★ **Adobe Photoshop 3.0**, Adobe Systems, 415/961-4400, \$895. Image-editing program both broadens its capabilities and simplifies its work environment in this dynamic upgrade. While it's not perfect, the pros far outweigh the cons. Jan 95

★★★★ **Adobe TextureMaker 1.0 (2.0)**, Adobe Systems, 415/961-4400, \$199. Versatile program lets you add layer upon layer of effects to create custom textures. The textures are impressive, but the program's a bit pricey. Oct 95

★★★★ **Alien Skin Textureshop 1.0**, Virtus, 919/467-9700, \$99. Apply mutations to master textures to create custom patterns made up of seamless tiles. Control freaks won't like this program's random mutations, but it provides a simple way to create patterns. Jul 95

★★ **Art Explorer 1.0**, Aldus Consumer Division, 206/628-2749, \$49.95. While its cartoon style is refreshing and its features promising, this paint/draw program for kids is still rough around the edges. Its biggest limitation is that it's unusably slow on 68030 Macs. Feb 95

★★★★ **Blueprint 5.0**, Graphsoft, 410/290-5114, \$295. For plain old 2-D drafting, this CAD software has a rich, easy-to-use feature set and is admirably fast. The Power Mac version in particular is a first choice for large architectural firms. *continues*

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tectural or engineering diagrams. Jan 95

★★★★ **CD-Q 2.0, Human Software Company, 408/741-5101, \$145.** Take advantage of Kodak's YCC format for Photo CD with this Photoshop plug-in, which lets you make color corrections and fine-tune color separations. If you frequently use Photo CD for image processing, this is the way to go—if you don't mind an inelegant interface and perfunctory documentation. Jul 95

★★★★ **ClarisDraw 1.0 (1.0v2), Claris Corp., 408/727-8227, \$399.** For presentations without grand artistic pretensions, this draw program can be an effective tool. Considering the wobbliness of some of its features, however, \$400 may be too much to pay. Jan 95

★★★★ **Color It 3.0, MicroFrontier, 515/270-8109, \$149.95.** Don't turn Old Paint out to pasture yet. This venerable paint program has been updated with a number of powerful new features, including precise control over pressure-sensitive input, convolution functions, and a focus filter. A great program for beginners. Aug 95

★★★★ **ElectricImage Animation System 2.0 (2.1), Electric Image, 818/577-1627, \$7495.** Although the price may seem incredibly high, this software, with its extraordinary animation and image-rendering capabilities, is worth every penny for cinematic-production professionals. Dec 94

★★ **FloorPlan Plus 1.1, ComputerEasy International, 602/829-9614, \$49.95.** Simple, affordable CAD program is intended for rudimentary design tasks. While it offers a good set of basic drafting tools, it falls short in several areas; only 16 colors are supported, for example, and rulers are nowhere to be found. Sep 95

★★★★ **Flying Colors, Davidson & Associates, 310/793-0600, \$59.95.** While not the most dynamic kids' program, this paint/draw program provides easy-to-use tools and nicely drawn stamps for ages eight to adult. Feb 95

★★★★ **Fractal Design Painter 3 (3.1), Fractal Design Corp., 408/688-8800, \$499.** Image-creation program has achieved a rare state of perfection, balancing enhanced conventional controls with spectacular effects packaged inside a tidy interface. It offers a new level of usability and genuine practicality. Apr 95

★★★★ **FullPixelSearch 1.5, Avian Systems, 201/224-2025, \$1295.** Analyze scientific images with a variety of pixel-selection functions. It's a useful tool for scientists, but could use batch processing, scripting, the ability to handle 12- and 16-bit images, and a heftier manual. Jul 95

★★★★ **Gryphon Batch It 1.0, Gryphon Software, 619/536-8815, \$199.** Arranges tiles in a visual interface to automate repetitive graphics operations. Although it lacks conditional statements, this batch processor is a time-saver. Jun 95

★★★★ **IntelliHance 1.0, DPA Software, 214/517-6876, \$129 to \$299.** Photoshop plug-in automates the process of improving scanned graphics with color correction and control over contrast, focus, and graininess. Sep 95

★★★★ **KPT Bryce 1.0 (1.0.1), HSC Software, 805/566-6200, \$199.** For less than \$200, you get a remarkable 3-D landscape-rendering program, a CD-ROM of images, a slide-show utility, and some screen-saver modules. Although the innovative, graphics-heavy interface can be confusing, this software is lots of fun. Dec 94

★★★★ **KPT Convolver 1.0, HSC Software, 805/566-6200, \$199.** Create your own Photoshop filters the intuitive way with this imaginative and absorbing plug-in module. The interface allows you to experiment, combining effects, tweaking results, and applying multiple undos if necessary. Aug 95

★★★★ **KPT Vector Effects 1.0, HSC Soft-**

ware, 805/566-6200, \$199. Adobe Illustrator and Macromedia FreeHand users will enjoy this imaginative collection of 13 plug-in filters that warp, distort, and otherwise alter vector-based images. Oct 95

★★★★ **Live Picture 2.0, HSC Software, 805/566-6200, \$995.** Latest version of this innovative image editor boasts lower RAM requirements, faster operations, and a much lower price tag than the original. Sep 95

★★★★ **MacDraft 4.0, Innovative Data Design, 510/680-6818, \$449.** Report-links to Excel and a clean interface make this 2-D CAD software an excellent choice for use in mechanical engineering and construction. Plus, it's easy to learn. Mar 95

★★★★ **MacPhase 2.0, The Otter Solution, 315/768-3956, \$279.** This speedy, feature-rich program offers the full spectrum of standard scientific and graphics image processing tools. Note that it's aimed at technical users, not dabblers. Aug 95

★★★★ **Macromedia FreeHand 5.0, Macromedia, 415/252-2000, \$595.** The new version of this venerable program has not only kept pace with the competition but has also added unique features of its own. Although the interface is more cluttered than ever, the wealth of new capabilities make this the drawing program to buy. May 95

★★★★ **MovieFlo' 1.1, The Valis Group, 415/435-5404, \$899.** Tug, twist, and pinch your sister—or at least a digital image of her—with this special-effects program for stills or QuickTime movies. Well-designed application is hampered by a steep price and a poor manual. Jun 95

★★★★ **Paint Alchemy 2.0, Xaos Tools, 415/487-7000, \$199.** An interface lift, additional blending

options, and improved animation controls make this flexible image editor an appealing add-on for digital artists. Sep 95

★★★★ **PhotoEnhancer 1.0, PictureWorks, 510/855-2001, \$129.** Nifty utility provides dozens of ways to improve the quality of QuickTake photos, from sharpening or softening focus to correcting over- or underexposed shots. Apr 95

★★★★ **PhotoFix 2.8.8, Microspot USA, 408/253-2000, \$249.** This image-editing/photo-enhancement program needs refinement, but its modest price and its ability to optimize images for output to low-end printers make it a useful tool. Sep 95

★★★★ **PhotoFlash 2.0, Apple Computer, 408/996-1010, \$129.** If you want to enhance or catalog images acquired from a scanner or a digital camera such as Apple's QuickTake 100, consider this utility. It's not a high-end image-editing program, but it does offer basic image-retouching tools at a reasonable price. Jul 95

★★ **PhotoFusion 2.0.3, Ultimatte, 818/993-8007, \$695.** If your original shot is clean, this Adobe Photoshop masking plug-in does a good job. But in the real world, this program's poor manual and less-than-intuitive controls make it hard to use. Oct 95

★★★★ **Pixar Typestry 2.1, Pixar, 510/236-4000, \$299.** With QuickDraw GX support, an approachable interface, a strong array of animation features, and outstanding image quality, this 3-D type-effects software is worth a try. It adds a new dimension to the way you look at type. Feb 95

★★★★ **PixelPaint Pro 3.01, Pixel Resources, continues**

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Star Ratings

404/449-4947, \$379. Color paint program strikes a good balance between the artistic demands of painting and the technical precision of image processing. **Mar 95**

★★★★ **PixelPutty Solo (1.5), The Valis Group, 415/435-5404, \$399.** Affordable modeler lets you manipulate 3-D objects as if they were clay. It's a capable program, but a bare-bones interface and skimpy manual make it somewhat daunting for novices. **Jun 95**

★★★★ **Poser 1.0, Fractal Design, 408/668-5300, \$199.** Specialized graphics tool generates three-dimensional human figures. Its appealing interface is simple enough for beginners, while its powerful graphics capabilities are suitable for professionals. **Oct 95**

★★★★ **PowerCADD 2.0, Engineered Software, 910/299-4843, \$795.** The latest incarnation of PowerDraw, PowerCADD is built for speed, but users will also take comfort in an enhanced interface and new drawing tools. **Oct 95**

★★★★ **Ray Dream Designer 3.1.1, Ray Dream, 415/960-0768, \$349.** 3-D graphics program provides competent (if sometimes awkward) modeling tools, offers excellent surface-texturing capabilities, and produces high-quality ray-traced renderings. **Mar 95**

★★ **Select 1.6, Human Software Company, 408/741-5101, \$245.** Although its selection mode provides a convenient and intuitive way to make changes to several colors at once, all the features of this CMYK color-correction plug-in can be found in Photoshop. **Jul 95**

★★★★ **SmartSketch 1.0, FutureWave Software, 619/637-6190, \$69.95.** Innovative, easy-to-use graphics program unites the free-form creativity of a paint program with the structure and precision of object-oriented drawing. **Sep 95**

★★★★ **Specular Collage 2.0.1, Specular International, 413/253-3100, \$399.** Practical image-compositing solution supplies a smooth interface and strong support for Adobe Photoshop 3.0. As long as you're willing to return to Photoshop to confirm your edits and make final changes, it's a serviceable tool. **Feb 95**

★★★★ **TextureScape 1.5, Specular International, 413/253-3100, \$195.** Algorithmic art program lets you manipulate and arrange PostScript shapes to create seamlessly repeating patterns. Like the best tools, it's simple enough to be fun and flexible enough to give you meaningful control. **Feb 95**

★★★★ **TypeTwister 1.0, Adobe Systems, 415/961-4400, \$29.99.** Inexpensive, easy-to-use, and fun type styler lets you create wildly styled text effects, although it won't satisfy hard-core type manipulators. **Jan 95**

★★★★ **Virtus WalkThrough Pro 2.0, Virtus Corp., 919/467-9700, \$495.** Aside from occasional stumbles, this design tool is an exceptional program that lets you quickly and intuitively interact with your designs and gives clients the opportunity to visit and explore your creations before they are built. **Apr 95**

★★★★ **Vision 3d 4.0, Strata, 801/628-5218, \$695.** 3-D modeling, rendering, and animation package expands its array of modeling tools and adds two renderers. Plug-in extensions provide a practical way to customize the program, while easy-to-read documentation makes learning its many features relatively painless. **Jul 95**

★★★ **Vistapro 3.0, Virtual Reality Laboratories, 805/545-8515, \$149.95.** 3-D landscape rendering software uses digital versions of U. S. Geological Survey maps to create images and allows you to add external features such as buildings and rivers. Although it's a good program, it has some limitations. **Feb 95**

★★ **xRes 1.11, Fauve Software, 415/543-7178, \$799.** You can apply a variety of effects to selected

areas of a large composition with this image editor. Although it offers pluses such as useful filters and customizable gradients, this program's numerous interface oddities make it less attractive than the competition. **Jul 95**

MATH/SCIENCE

★★★★ **Chamber Works 1.0.2 (1.1), OnScreen Science, 617/776-6416, \$99.** Simulator for particle-physics events is the best introduction to particle physics yet produced, at a great price. **Dec 94**

★★★★ **The Fuzzy Logic Toolbox 1.0, MathWorks, 508/653-1415, \$895.** Control-system engineers who want to incorporate fuzzy logic into their systems will find this software an excellent aid. It includes a helpful tutorial and a well-designed graphical interface. **Sep 95**

★★★★ **MLab, Civilized Software, 301/652-4714, \$1495.** Mathematical-modeling software lets you do fast computation on numerically complex real-world problems, using an ancient Mac II or higher. You must be willing to write short programs, but professional researchers will find it a rewarding choice. **Apr 95**

★★★★ **Statistica/Mac 4.1, StatSoft, 918/583-4149, \$695.** At present, this statistical software is the undisputed features-per-dollar champion in the Mac market. **Mar 95**

★★★★ **Survival Tools 1.0 (1.1), Abacus Concepts, 510/540-1949, \$295.** The combination of survival analysis with the StatView template systems gives you a virtual actuary-in-a-box. It's a great set of tools, conveniently packaged. **Feb 95**

ORGANIZATION/PRODUCTIVITY

★★★ **ACT 2.0, Symantec Corp., 503/334-6054, \$249.95.** Contact manager's file-level compatibility with DOS and Windows and its complete contact management make it worth considering if you can live with its weak scheduling functions. **Mar 95**

★★★★ **Arrange 2.0, Common Knowledge, 415/325-9900, \$349.** If your needs fall beyond the usual calendar and address-book functions, this personal information manager is a strong contender. It now has more calendar functions and print options. **Dec 94**

★★★ **Claris Organizer 1.0 (1.0v2), Claris Corp., 408/727-8227, \$99.** New personal information manager users, lured by the price, performance, and ease of use of this product, will find that it meets their needs. Most longtime PIM users won't be tempted to switch. **Jan 95**

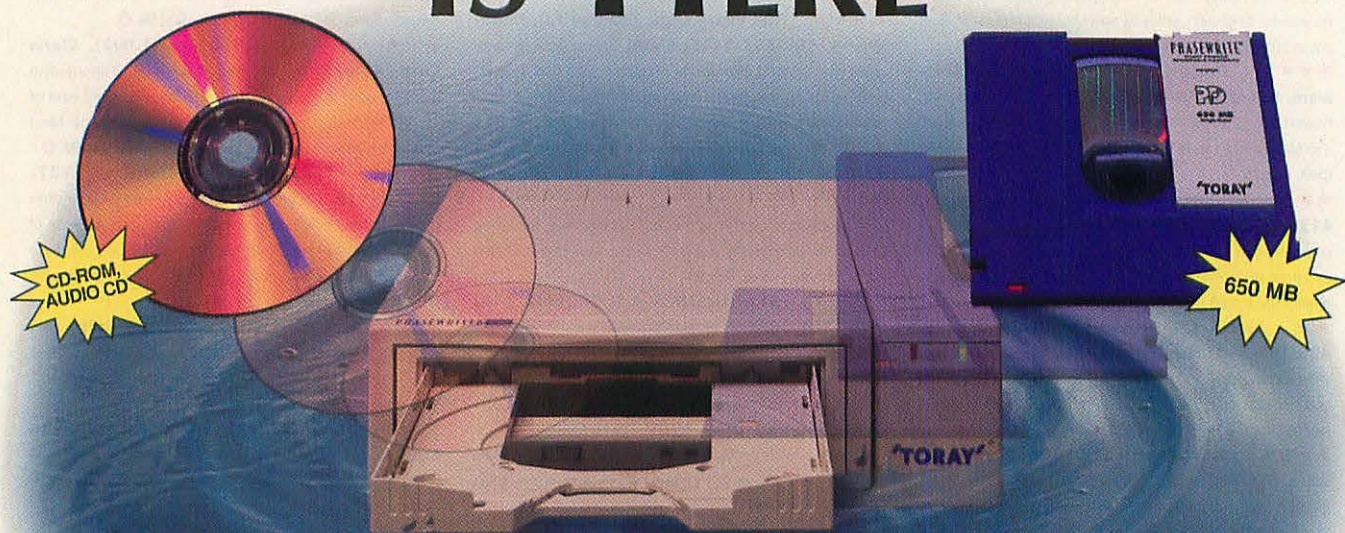
★★★★ **ClarisWorks 4.0, Claris, 408/727-8227, \$129.** Dozens of delicate nips and tucks, rather than a massive overhaul, characterize the latest upgrade of this integrated program. Its word processor and database components can stand up to their stand-alone counterparts. **Oct 95**

★★ **ClientTrac 2.0, Whiskey Hill Software, 415/851-8702, \$99.** It's easy to enter contact information, but this PIM is slim on speed, features, and flexibility. **May 95**

★★★ **Day-to-Day Organizer 1.0, Portfolio Software, 802/434-6400, \$149.95.** The address-book and outlining components of this organizer are great, *continues*

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Star Ratings

but overall it's a mixed bag. The calendar interface and the way it handles recurring events need to be improved. May 95

★★★★ **Expresso 1.0, Berkeley Systems, 510/540-5535, \$69.99.** The just-the-basics approach of this calendar and address book might be just fine for people who don't need the feature set of other calendar programs and enjoy its graphics. Apr 95

★★★★ **FastPace Instant Contact 1.0 (1.1), Attain Corp., 617/776-1110, \$39.99.** Although this contact manager could use a few additional features—especially a menu-bar search function—it does a capable job, and it is intuitive and easy to use. Jan 95

★★★★ **FastTrack Schedule 3.0, AEC Software, 703/450-1980, \$299.** Updated version of this project planner includes a detailed calendar, a customizable Gantt chart, and new formatting columns, but additional customization options would be helpful. Aug 95

★★★★ **In Control for Workgroups 3.5, Attain, 617/776-1110, \$149.95; 10-pack \$949.95.** Flexible project planner and scheduler combines an outliner and a calendar. It's a valuable tool for networked groups that need to share project information. Sep 95

★★★★ **InTouch 2.5, Prairie Group, 515/225-3720, \$69.95.** Free-form contact manager offers speedy access to information. If you don't need to perform complex searches or sorts, this program is a good choice. Sep 95

★★★★ **Now Contact and Now Up-to-Date 3.0, Now Software, 503/274-2800, \$99.** Taken together, this contact manager and calendar provide a set of solid, reliable tools for keeping your life in order. Users who need to share information over a network may find it close to ideal. Apr 95

★★ **Peanuts Family Organizer 1.0, Individual Software, 510/734-6767, \$19.95.** "Hey, Pop, can I borrow the car Saturday night?" "Look at the family PIM and check my calendar, Son." This organizer's endearing interface doesn't make up for missing or poorly implemented features. Jun 95

★★ **Souvenir 2.2, ComposeTel, 415/327-0744, \$49.** This contact manager is fast and simple, but it's hard to recommend when you can buy integrated contact managers and schedulers for about the same price. Dec 94

PRESENTATION TOOLS

★★★★ **Adobe Premiere 4.0 (4.0.1), Adobe Systems, 415/961-4400, \$795.** Video-editing software remains as solid and reliable as previous versions, and also advances far and above its competitors with new and improved professional-level features. With the right hardware, it can give desktop-video editors broadcast-quality products with a minimum of compromises. Dec 94

★★★★ **Amazing Animation 1.0, Claris Corp., 408/727-8227, \$49.** Cute pictures, funny sounds, and a kid-friendly interface come together in this package that lets children produce short animations or interactive presentations. The canned animations and scenes grow tiresome, however. Jan 95

★★★★ **Electronic Marker 1.0.2, Consumer Technology Northwest, 503/643-1662, \$34.95.** This annotation tool can be a practical enhancement to live demos and on-screen presentations, but it needs better controls for modifying and preserving markup layers. May 95

★★ **Living Album 2.5, QuickMedia Labs, 408/749-9200, \$129.95.** A crowded interface detracts from the usefulness—and aesthetics—of this multimedia album. May 95

★★★★ **MediaPaint 1.0, Strata, 801/628-5218, \$695.** Anyone who produces special effects for

QuickTime movies will welcome this program, which lets multimedia developers edit ranges of frames. Although it's a RAM hog, this useful tool removes much of the tedium of special-effects work. Sep 95

★★★★ **Microsoft PowerPoint 4.0, Microsoft Corp., 206/882-8080, \$339.** If you're in the market for a presentation-graphics program, this is a good choice to use along with Word or Excel, as long as you don't mind the lack of animation functions. For general purposes, though, other alternatives have the edge. Feb 95

★★ **mPower 2.0, Multimedia Design Corp., 704/523-9493, \$295.** Despite a handful of sophisticated multimedia features, this authoring tool is too limited to be compelling. While its push-button interface is easy to understand, it's far too cumbersome. Apr 95

★★★★ **Presenter Professional 3.0, VID!, 818/358-3936, \$1995.** The improved interface, enhanced animation module, and reduced price of this 3-D modeling and animation package make it an excellent choice for multimedia producers. The new audio features are especially appealing. May 95

★★★★ **SoundEdit 16, Macromedia, 415/252-2000, \$379.** Digital audio software supports 16-bit sound and has enough goodies to earn it a place in a multimedia producer's toolbox. But its lack of record-level controls limits its usefulness as a professional audio tool. Dec 94

★★ **Special Delivery 2.0, Interactive Media Corp., 415/948-0745, \$399.** Multimedia authoring tool can be confusing and isn't the best choice for complex projects. Still, it may save hours of training for users who merely need to create simple presentations. Apr 95

★★★★ **SuperCard 1.7.1 (2.0), Allegiant Technologies, 619/587-0500, \$495.** Multimedia authoring system adds a few welcome enhancements and squashes some old bugs. For current users, the upgrade is well worth the price; for others, it's an excellent alternative to more expensive authoring systems. Feb 95

★★★★ **TransJammer, Elastic Reality, 608/273-6585, \$99.** Plug-in for Adobe Premiere and Avid VideoShop offers 100 customizable video-transition effects, ranging from the conventional to the, well, odd (like falling cows). If you've ever tried to make your own falling-cows transition, you'll appreciate this time-saving tool. Aug 95

PROGRAMMING

★★★★ **AppWare 1.2, Novell, 801/429-7000, \$495.** Development system offers professional and novice programmers an efficient, graphical method of creating commercial or in-house applications. Oct 95

★★★★ **JAM 6, JYACC, 212/267-7722, \$2000.** Thanks to this well-designed tool, the Mac is now a viable platform for development of large-scale corporate client-server database applications. Oct 95

★★ **ScriptWizard 1.0, Full Moon Software, 408/253-7199, \$99.** Software attempts to make writing and debugging AppleScript scripts easier. Unfortunately, it doesn't offer enough improvement over Apple's Script Editor. Jan 95

★★★★ **Symantec C++ 8.0, Symantec, 503/334-6054, \$499.** The new version of this development continues

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environment offers native PowerPC compilers for C++ and ANSI C. The project manager and class browser have been improved and the compiled code is laudable, but our reviewer had some complaints about the package's resource demands and the company's support reputation. Jul 95

★★★★ **VIP-C 1.5 (1.5.1), Mainstay, 805/484-9400, \$495.** For convenience in producing 680X0/Power Macintosh applications, this programming utility is a fine investment. Intermediate to advanced users will get the most benefit, but even beginners will find that it helps turn student projects into serious apps. Feb 95

UTILITIES

★★★★ **Aladdin Desktop Tools 1.0, Aladdin Systems, 408/761-6200, \$89.95.** Not all the utilities in this collection are perfectly implemented, but Desktop SpeedBoost and Desktop Printer make the package worth its price. The rest can be considered a bonus. Aug 95

★★★★ **Cal 1.0, Thought I Could, 212/673-9724, \$79.95.** Well-chosen set of desktop necessities includes an excellent calculator, an associated-formula editor, a datebook, and a calendar. Due to its easy access and ample power, this software has become an everyday tool for our reviewer. Jan 95

★★★★ **CanOpener 3.0, Abbott Systems, 914/747-4171, \$125.** You can use this handy utility to open many types of files—which can be a lifesaver if you don't have the application a file was created in—but it falls a little short in the file-search department. May 95

★★★★ **CD Directory 1.0, Insignia Solutions, 415/694-7600, \$69.95.** Store catalogs of CD directories on your hard drive—and access them at hard drive speeds—with this handy utility. One complaint: cataloged CDs are treated as local drives, greatly increasing search time during a global search. Jul 95

★★★★ **Color Compass 1.0 (1.1), Praxisoft, 703/729-3391, \$129.** Speedy, specialized tools allow you to blend, match, and tweak colors in subtle ways not possible in most programs. Although graphics experts might not need this program, it provides helpful visual feedback for creating and organizing color palettes. Aug 95

★★★★ **Conflict Catcher 3, Casady & Greene, 408/484-9228, \$99.95.** This extension-management utility was already great—and it just got better. Like a digital Jimmy Carter, it offers a friendly, flexible approach to conflict resolution. Sep 95

★★★★ **Disc-To-Disk, Optical Media International, 408/376-3511, \$199.** Audio-capture utility's friendly interface provides a simple way to transfer sound from a CD to the Mac's hard drive. A useful tool for multimedia authors. Jun 95

★★★★ **DiskGuard 1.0.1 and DiskGuard Remote, ASD Software, 909/624-2594, \$129 to \$799.** Rock-solid, flexible disk-protection tools are worth serious consideration if your Mac or Macs are accessible to other users. The remote version (which comes in five- and ten-user packs) adds network features, including clock synchronization. Mar 95

★★★★ **DragStrip 1.0, Natural Intelligence, 617/876-4876, \$39.95.** Icon-based file and folder organizer brings a semblance of order to your cluttered desktop. But your troubles aren't over unless a future version lets you label folders. May 95

★★★★ **eDisk 2.0, Alys Software Corp., 415/928-2895, \$149.95.** Driver-level software compresses data read to your drive on the fly and automatically expands data read from your drive. It offers transparent compression. Dec 94

★★★★ **File Genie Pro 1.1, Duet Development, 408/559-3838, \$89.** File-management utility offers fast, convenient cataloging and searching of stored files, but its search criteria are limited. Oct 95

★★★★ **FolderBolt Pro 1.0.3, Kent Marsh, 713/522-5625, \$129.95.** Feeling unsecured? Top-notch encryption schemes and flexible access controls let you secure your Mac's contents by password-protecting folders and encrypting the data they contain. Jul 95

★★★★ **Gear 2.5, Elektroson, 610/617-0850, \$799.** CD-recordable mastering software is a mixed bag. It's speedy and reliable, but can't record HFS CD-ROMs from just a portion of a hard drive without additional software. Sep 95

★★★★ **Graffiti 1.01, Palm Computing, 415/949-9560, \$79.** If you can't seem to teach Newton your handwriting, you can teach yourself a new writing system that Newton can handle. Kind of makes you wonder who's running the show, but it works. May 95

★★★★ **InstantReplay 1.0, Strata, 801/628-5218, \$149.** Now you see it, now you see it again. This utility records on-screen activity and saves it as a QuickTime movie, including audio. File-conversion capabilities are an added bonus. Sep 95

★★★★ **Kaboom 3.0, Nova Development Corp., 818/591-9600, \$49.95.** Sound-effects utility with sound-editing application is a fun program for anyone who wants to play with sound. Feb 95

★★★★ **Launch Pad 1.0, Berkeley Systems, 510/540-5535, \$49.99.** If you want to share your Mac with your kids, this desktop utility is a worthwhile investment. It can even speak menu items and file names out loud for kids too young to read. Jan 95

★★★★ **MacTools Pro 4.0, Symantec Corp., 503/690-8090, \$149.95.** This utility does a good job of diagnosing and fixing disk problems, but suffers from large RAM requirements and expensive tech support. May 95

★★★★ **Maxima 3.0, Connectix, 415/571-5100, \$99.** If you have more than 8MB of RAM, you can use some of it as a RAM disk, speeding up disk-based operations, with this inexpensive utility. Nov 94

★★★★ **Menu Master Mac, Electronic Learning Systems, 904/375-0558, \$99; 15-site license \$299.** Security software lets an administrator restrict a user's access to certain files on a shared Mac. It's a useful program, but could use some additional features, such as the ability to restrict computer usage to particular times. Sep 95

★★★★ **MultiClip Pro 3.1, Olduvai Corp., 305/670-1112, \$59.** Easy-to-use utility is exactly what Apple's Clipboard and Scrapbook should have been; a convenient repository of data that moves between documents without fuss or muss. Apr 95

★★★★ **Multimedia Utilities 1.1, Motion Works, 415/541-9333, \$299.** Six utilities address QuickTime moviemaking, from editing movies and sound tracks to creating morphs, animations, and screen recordings. Although the utilities are appealing, you must save early and often because of frequent crashes. Jul 95

★★★★ **Norton DiskDoublerPro 1.1, Symantec Corp., 503/334-6054, \$109.** Utility collection includes DiskDoubler, AutoDoubler, and CopyDoubler. Because of its ease of use, the product is a good choice for beginners. Feb 95

★★★★ **Norton Utilities for Macintosh 3.1, Symantec Corp., 503/334-6054, \$149.95.** Data-protection and -recovery utility collection is leaner, meaner, and faster than ever before, but it's also surprisingly uneven. While Disk Doctor leads the pack for disk-repair utilities, the continues

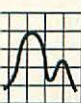
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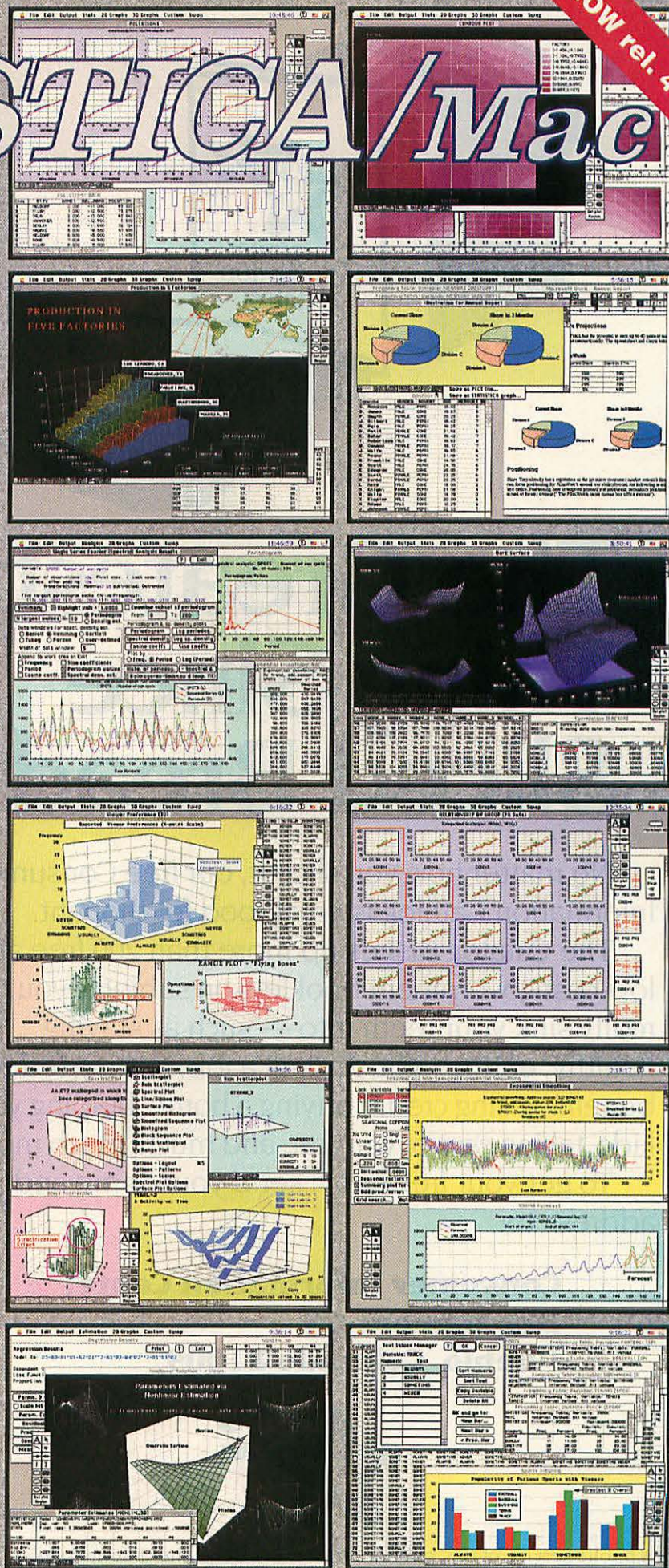
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back-up module is weak and the new UnErase module is missing some features. Feb 95

★★★★ **Now Utilities 5.0, Now Software, 503/274-2800, \$89.** Three of the modules of this fine-tuned, interlocking utility set—Now FolderMenus, Now Menus, and Now SuperBoomerang—are almost indispensable, and while the other six may not be tops in their category, they're well worth considering. As a collection, this package remains the best in the business. Jan 95

★★★★ **On Cue II Utilities 3.0, ComputerEasy International, 602/829-9614, \$99.95.** Eight modules add functionality to the Mac Operating System. It's useful, but not as comprehensive as the competition. Sep 95

★★★★ **OptiMem RAM Charger 2.0.1, Jump Development Group, 412/681-2692, \$129.** Use RAM more efficiently with this memory-management utility. The Mac OS ought to work like this, but until it does, you should use this nifty utility. (An added bonus: it works on older Macs, back to the Mac Plus.) Jul 95

★★★★ **PaperPower 1.0, Piptel, 513/294-6656, \$149.** Graphics-tablet utility provides a useful tool for creating and using macros, but the overlays it creates can be tricky to use. Apr 95

★★★★ **Peirce Print Tools 1.0, Peirce Software, 408/244-6554, \$129.** Nine handy printing utilities work with QuickDraw GX. Most of the modules are useful, but not all are must-haves. Jan 95

★★★★ **PowerAgent 1.1 (2.0), SouthBeach Software Corp., 305/942-0605, \$159.** You can revolutionize your Macintosh work with this agent program that manages scripts. It provides excellent support for File-Maker Pro. Nov 94

★★★★ **Power Secretary Power Edition 2.0, Articulate Systems, 617/935-5656, \$2495.** This impressively accurate speech-recognition program sits on your Mac and takes dictation, learning your voice patterns as you use it. It's expensive, but provides a viable alternative to keyboard input. Sep 95

★★★★ **RapidCD 1.04, Insignia Solutions, 415/694-7600, \$69.95.** RAM and disk caching of CD-ROM data speeds access to frequently used data. This utility does its job well, but it's incompatible with the AppleCD Audio Player and doesn't allow you to add to its settings. Jul 95

★★★★ **RescueTxt 1.0, Abbott Systems, 914/747-3116, \$79.** For decent performance and the ability to locate text in even a deleted file, this text-retrieval utility is a good choice. But it doesn't tell you what file the text comes from, so you can't just open the found file. Apr 95

★★★★ **Square One 2.0 (2.0.1), Binary Software, 310/449-1481, \$74.** The slick design, flexibility, and straightforward interface of this file-launching utility make it a pleasure to use. Dec 94

★★★★ **Stuffit Deluxe 3.5, Aladdin Systems, 408/761-6200, \$129.95.** If you're looking for a compression solution, you should look at this product. Its drag-and-drop applications, Magic Menu, and file translators make it easy to integrate compression into your routine. Mar 95

★★★★ **TypeTamer 1.0.4, Impossible Software, 714/470-4800, \$59.95.** Versatile font utility provides information on installed fonts and simplifies tasks such as typing special characters and reselecting fonts from the menu. May 95

★★★★ **ultraSecure 3.524, usrEZ Software, 714/756-5140, \$239.** Security program offers a comprehensive set of protection tools, but has a few flaws, including incompatibilities with several types of programs. Sep 95

★★★★ **Virex 5.5.1, Datawatch Corporation, 508/988-9700, \$99.95.** Comprehensive, reliable, and continues

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speedy utility helps protect your files from those misguided lads who get their jollies by releasing viruses. To keep it current, updates are available on online services. **May 95** **★★★**

★★★ Zonkers 1.0, Nova Development, 818/591-9600, \$19.95. Redecorate your Mac with this collection of silly desktop enhancements. Customize icons, scroll bars, cursors, buttons, menu bars, windows, and desktop patterns to create your own look. **Aug 95**

VERTICAL MARKETS

★★★ Autoscore 1.0, Wildcat Canyon Software, 510/527-5155, \$150. Converting the human voice into MIDI note information is a challenging task. If you have the right music software, mike, and voice, this music-recognition software can actually pull it off. **Feb 95**

★★★ Bird Brain 2.01, Ideafarm, 515/472-7256, \$99.95. Database lets bird watchers record every sighting of every bird they have ever seen to create electronic life lists. Although it can be slow, it includes species names and other information. **Jan 95**

★★★ ConcertWare 1.5.7, Jump Software, 415/917-7460, \$159. Although it lags behind the competition in performance and features, this music-notation program's low price and ease of use make it a viable choice for the budget-wise. **Jun 95**

★★★ DigiTrax 1.1, Alaska Software, 408/738-3320, \$349. If you're an amateur musician or a multimedia producer with modest sound-recording needs and you have a Quadra AV, consider this audio-recording software. What it lacks in features, it makes up for in simplicity

and a relatively low price tag. **Mar 95**

★★★ ErgoKnowledge 1.0, Visionary Software, 503/246-6200, \$395. Despite a few shortcomings, this CD-ROM offers a good, basic review of office-computer ergonomics. **Dec 94**

★★★ Insta Software, Chang Labs, 408/727-8096, \$29 per module. No-frills, preprogrammed relational databases handle forms and record-keeping for specific businesses. They can't be customized, but the databases are straightforward and require little training or setup. **Aug 95**

★★★ MayaCalc 2.3.1 (2.3.3), Ecological Linguistics, 202/546-5862, \$120. 4th Dimension database alleviates much of the pain involved in working with the complex, multilayered Maya calendar. Although the design could be improved, it's a highly useful tool for both serious and casual Maya enthusiasts. **Feb 95**

★★★★ Maya Hieroglyphic Fonts, Ecological Linguistics, 202/546-5862, \$10 to \$60 per set. Although these fonts based on Mesoamerican hieroglyphic scripts are beautifully rendered, the character spacing is sometimes uneven. **Feb 95**

★★★★ Medical HouseCall 1.0, Applied Medical Informatics, 801/464-6200, \$99.95. Interactive medical guide is a painless way for people to learn about diseases, tests, and therapies. Although it's easy to use and interesting, some images were incorrectly labeled. **Feb 95**

★★★★ Nightingale 2.0, TAP Music Systems, 206/462-1007, \$495. With its lightning speed, powerful editing tools, and OCR entry option, this bird can stand up to any music-notation product on the market. **Oct 95**

★★★★ Overture 1.02, Opcode Systems,

415/856-3333, \$495. Easy-to-learn, midrange notation software has a friendly interface and shows real polish. If you don't need all the features of a high-end product, it's a serious contender. **Apr 95**

★★★★ Performer 5.02, Mark of the Unicorn, 617/576-2760, \$495. A colorful, redesigned interface and improved sheet-music view are just part of this MIDI recording program's worthwhile overhaul. If you like the sheet-music view, this is the product to buy. **Mar 95**

★★★★ Practica Musica 3.0 (3.1), Ars Nova Software, 206/889-0927, \$140. Music-teaching program, with emphasis on sight-reading and ear-training techniques, shines as a smart, infinitely patient personal music coach in the classroom. **Jan 95**

★★★★ Route 66 1.5, Route 66 Geographic Information Systems B.V., 415/957-0666, \$79.95. Jack Kerouac could have saved a lot of time if he'd used this route planner (unless he was driving to Alaska, which isn't included). It's fast, but omits some cities and can't handle more than three destinations at a time. **May 95**

★★★★ StoryBoard Artist 1.5, PowerProduction Software, 310/937-4411, \$499. Build a storyboard by selecting backgrounds, characters, and props from a library. While it's a helpful tool, starving artists will find its price too high. **Oct 95**

★★★★ Vision 2.08, Opcode Systems, 415/856-3333, \$495. MIDI program's list of exclusive, creativity-slanted features, such as endless count off and scrubbing (which lets you hear the music as you drag across it), give the program a usability edge. **Mar 95**

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HyperCard 2.3	4 videos	<input type="checkbox"/>
Illustrator 5.0/5.5	5 videos	<input type="checkbox"/>
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Star Ratings

WRITING TOOLS

★★★★ **Bookends Pro 3.1, Westing Software, 415/435-9343, \$129.** Comprehensive database program catalogs and stores all of your reference material—actual quotes as well as citations. It's a useful tool that researchers will appreciate. Mar 95

★★★★ **EndNote Plus 2.0, Niles & Associates, 510/649-8176, \$299.** Despite its power, this indispensable bibliography and citation manager is surprisingly easy to learn and use. If you have to work with references, it's a good choice. Apr 95

★★★★ **FullWrite 2.01, Akimbo Systems, 617/776-5500, \$395.** As the leanest of all high-end word processors, this product requires only 2MB of RAM. Its modular architecture is complex, but it's worth considering if you don't need to share files with the Word/WordPerfect crew. Apr 95

★★★★ **Grammatik 6 for Macintosh, Novell, 801/225-5000, \$49.95.** The low price, pleasant interface, and improved accuracy of this grammar checker make it worthwhile for a large number of quality-driven writers. It still misses some errors. Feb 95

★★★★ **Inspiration 4.1, Inspiration Software, 503/245-9011, \$195.** Writing tool allows you to move between words and diagrams to show the relationships between ideas. This version adds improved keyboard controls, import and export capability, plus more. Apr 95

★★★★ **Microsoft Word 6.0, Microsoft Corp., 206/882-8080, \$339.** If you can put this word processor's new features—including cross-referencing, AutoText, automatic numbering, macros, and more—to work and you

have a Quadra 650 or faster Mac, take the plunge. If you have a slower 68040 Mac, think twice; and if you have a 68030 Mac, don't even think about it. Feb 95

★★★★ **Nisus Writer 4.0, Nisus Software, 619/481-1477, \$495.** In a few specialized areas—such as mixing English and non-Romance languages—this word processing program is unmatched. However, for some high-end uses, such as table creation, it's a poor choice. Mar 95

★★ **Read-It O.C.R. Pro 5.0, Olduvai Corp., 305/670-1112, \$395.** Although this OCR software has a nice collection of features, its recognition engine isn't up to par. It's not a first choice unless you simply need to process piles of very clear Courier text. Apr 95

★★★★ **Three by Five 2.0, MacToolkit, 310/395-4242, \$99.** How retro! This idea organizer uses the metaphor of index cards on a corkboard. Unlike real index cards, the program lets you attach QuickTime movies, link cards, or switch to an outline view. Aug 95

★★★★ **Writing Coach 1.0, WritePlace Software, 503/484-6380, \$89.** If you'd like help with your writing, this writing-skills tutorial could be a great investment. Skillfully worded worksheets assist with planning, organizing, and revising. Dec 94

Hardware

INPUT DEVICES

★★★★ **ArtPad, Wacom Technology, 206/750-8882, \$199.** Measuring less than 7 by 7½ inches,

this pressure-sensitive tablet is sheer convenience if you're looking for a device that you can hide away one moment and readily exhumate the next. Apr 95

★★★★ **ChoiceStick 1.0.2, Kernel Productions, 302/456-3026, \$69.95.** Entering data into a spreadsheet is much quicker if you use a joystick instead of a mouse. Well, maybe you can convince your boss of that. Otherwise, use this port to attach a pair of joysticks to your Mac so you can play games. Sep 95

★★★★ **DrawingSlate II, CalComp, 602/948-6540, \$395.** A responsive stylus and user-definable macros make this digitizing tablet an excellent choice for artists and illustrators. Jun 95

★★★★ **FlightStick Pro for Macintosh, CH Products, 619/598-2518, \$129.95.** The authentic feel of this joystick, along with well-conceived software, make it a nearly perfect desktop pilot's companion. Dec 94

★★★★ **GlidePoint, Alps Electric, 408/432-6000, \$99.** If you find moving the mouse a pain in the arm, you might want to try this alternative pointing device, which lets you position the cursor by moving your finger across its surface. Jul 95

★★ **Jetstick, CH Products, 619/598-2518, \$74.95.** Our reviewer liked this joystick's hardware, but found the manual and the software lacking. Sep 95

★★★★ **Mac Keyboard Deluxe, MicroSpeed, 510/490-1403, \$125.** If you're in the market for a new or replacement keyboard, this one, which is both smaller and lighter than Apple's Extended Keyboard, is worth considering. It has four ADB ports. Nov 94

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Circle 105 on reader service card

Star Ratings

★★★ **MacAlly, The Mace Group, 213/780-6110, \$49.** It may not be a better mouse, but it's a cheaper one. This ADB mouse doesn't stand out from the crowd, but it's durable, glides smoothly, and won't leave a big hole in your pocketbook. Jul 95

★★★ **Mouse Deluxe Mac, MicroSpeed, 510/490-1403, \$69.** The extra buttons of this mouse offer several features that Apple's mouse doesn't match, but its shape may not suit everyone's taste. Mar 95

★★★★★ **PaperPort, Visioneer, 415/812-6400, \$399.** The paperless office is actually here. This clever combination of elegant hardware and intelligent software makes it easy to capture, organize, and retrieve documents. Once a page is scanned in, you can annotate it; run it through OCR software; or print, fax, or E-mail it. May 95

★★ **Point Pad, Hagiwara Sys-Com, 619/546-9989, \$99.** Compact touchpad lets you control the cursor with stylus or finger, but you can't fine-tune cursor response. Oct 95

★★★ **QuePoint, MicroQue, 801/263-1883, \$149.** Tired of shoving a mouse around? Slide your finger across this tiny input device to manipulate the cursor with a minimum of movement. May 95

★★★ **Remote Point, InterLink Electronics, 805/484-1331, \$199.** Although it may not be a first choice for desktop work, this infrared pointing device is an elegant workaround for users who don't want to (or can't) be tethered to their Macs. Apr 95

★★★★ **Thinking Mouse Macintosh ADB, Kensington Microwave, 415/572-2700, \$139.95.** A mouse is a mouse is a mouse. Not so. This one has four programmable buttons that you can use—with the accompa-

nying software—to automate such tasks as selecting commands and typing text. May 95

★★★ **Trackball Pro ADB, CH Products, 619/598-2518, \$119.95.** Although this trackball is less expensive than the competition's, it falls short in programmability and overall functionality. Sep 95

MISCELLANEOUS HARDWARE

★★★★ **AirNote 1.0 (1.1), Notable Technologies, 510/208-4400, \$299.** Remote-messaging service lets you originate alphanumeric paging messages from your own computer, eliminating both dictation charges and errors in translation. It's a very handy way to get into alphanumeric paging. Dec 94

★★★ **Apple PCMCIA Expansion Module, Apple Computer, 408/996-1010, \$219.** Well-integrated, well-designed unit offers 500-series users an efficient and easy albeit expensive way to add features to their PowerBooks. If you can overlook the early-adopter prices (a big if), the PC Cards are great expansion options—lightweight, low-power, and high-performance. Mar 95

★★★★ **Colortron, Light Source Computer Images, 415/925-4200, \$1195.** Getting the colors on your screen to match those in your output is now easy and affordable, thanks to this hand-held spectrophotometer, which measures transmissive and reflective sources. Jun 95

★★★★ **DayStar PowerPro 601/DayStar Turbo 601, DayStar Digital, 404/967-2077, PowerPro 601 \$1599; Turbo 601 \$1499.** Squeeze more performance out of your Mac with these impressive 601-based accelerator cards. Sep 95

★ **EAB401P Speakers, Panasonic Communications & Systems, 800/742-8086, \$99.** Small, inexpensive speakers provide less-than-state-of-the-art performance. The audio is thin and reedy. Apr 95

★★ **EAB701P Speakers, Panasonic Communications & Systems, 800/742-8086, \$249.** The sound of these speakers is thin and slightly harsh, although they are attractive in a high-tech sort of way. Apr 95

★★★★ **MMS557, Audio-Technica USA, 216/686-2600, \$149.95.** Among a huge selection of similarly priced speaker systems, these stand out as a best buy. They look good, as well as sound good. Apr 95

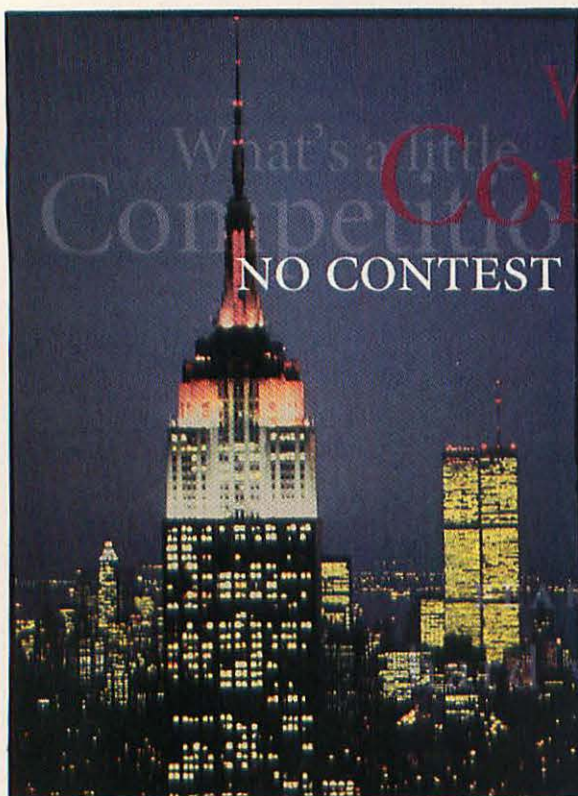
★★★★ **MultiSpin 4Xe, NEC Technologies, 708/860-9500, \$515.** With its competitive price, free tech support, and two-year warranty, this quad-speed CD-ROM player is ready to race. Feb 95

★★ **NEC AudioTower, NEC Technologies, 800/632-4636, \$99.** Looks great; sounds mediocre. Although this speaker system provides a convenient jack for an external CD drive, the sound quality is nothing to shout about. May 95

★★★★ **Photo Engine, Radius, 408/541-6100, \$1099.** Photoshop acceleration hardware's suite of four 66MHz 32-bit DSP chips offers sufficient processing power to speed up 25 Photoshop functions on the most sophisticated systems, including Power Macs. Feb 95

★★★★ **Reno Portable CD-ROM Player, MediaVision, 510/770-8600, \$349.** Have CD-ROM, will travel. This portable player is lightweight, versatile, and easy to set up; about the only complaint is its short battery life. Jun 95

continues



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Star Ratings

★★★★ **Vivace, Coda Music Technology, 612/937-9611, \$2295.** As an intelligent and endlessly patient accompanist, this music study system for wind instruments may be the best thing that's happened to learning wind literature since the metronome. Jan 95

★★★★ **Vivid 3D Pro, NuReality, 714/442-1080, \$149.95.** This sound-enhancement system uses the SRS technique to produce 3-D sound from a pair of speakers. While it's great for system sounds and games, it's less impressive for audio CDs. Aug 95

★★★★ **YST-SS1010, Yamaha Corporation of America, 714/522-9240, \$349.95.** With a name like YST-SS1010, you have to be good. And it is. This satellite-and-subwoofer speaker system is highly recommended, despite its mediocre manual. Jul 95

MODEMS/NETWORK HARDWARE

★★ **Cooperative Adapter, Photonics Corp., 408/955-7930, \$449.** The high cost of each unit, the limitations and restrictions inherent in diffuse infrared, and the extremely low cost of traditional LocalTalk adapters and cabling make this infrared network interface an expensive niche product. Dec 94

★★★★ **DaynaPort Pocket SCSI/Link, Dayna Communications, 801/269-7200, \$299 to \$369.** Inexpensive, lightweight SCSI-to-Ethernet connector works with both desktop Macs and PowerBooks and can use the Mac's ADB port as a power source. Nov 94

★★★★ **FastSwitch 10, Grand Junction Networks, 510/252-0726, \$6250.** Switched Ethernet hub is a great solution for networks that handle large amounts of

data traded peer-to-peer, but if your network consists of E-mail and a file server, you probably won't see much benefit in stepping up to switched Ethernet. Dec 94

★★★★ **GeoPort Telecom Adapter Kit, Apple Computer, 408/996-1010, \$129.95.** Adapter unlocks the software modem built into 680X0AV and Power Macs, providing access to voice, data, and fax services. Our reviewer wanted faster transmission speed, better OCR capability, and a lower price. Oct 95

★★★★ **Internet Server Solution for the World Wide Web, Apple Computer, 408/996-1010, \$2909.** It's not ideal for all types of Internet publishing, but this hardware-and-software bundle is a starting place for people who want to be publishers, not technicians. Oct 95

★★★★ **OneWorld Combo, Global Village Communication, 408/523-1000, \$1499 without modems; \$2099 with modems.** It is the very model of a multiuser modem pool. You can't receive a fax but barring that this server's really cool. Sep 95

★★★★ **OneWorld Internet 1.0, 700 Series, Global Village Communication, 408/523-1000, \$1699 plus monthly fee.** Users of an office network can connect to the Mother of All Networks with this Internet gateway. It offers E-mail and direct Internet access in an approachable format. Jun 95

★★★★ **Pocket EtherTalk Adapter, Xircom, 805/376-9300, \$349 to 399.** All-in-one SCSI-to-Ethernet connector is lightweight and works with desktop Macs and PowerBooks. Nov 94

★★★★ **Power Class 28.8 Data/Fax Modem, Motorola, 205/430-8000, \$395.** Superior connection speeds and easy setup are attractive, but this modem comes

with mediocre fax/telecommunications software and doesn't support V.Fast connections. Oct 95

★★★★ **PowerPort Mercury/PB 500 Series, Global Village Communication, 408/523-1000, \$399.** Top-notch internal fax modem for 500-series PowerBooks is capable of exemplary fax and data communications performance. Nov 94

★★★★ **TelePort Platinum, Global Village Communication, 408/523-1000, \$279.** If you want V.34 (28.8-Kbps) data and 14.4-Kbps faxing capability, incoming-call recognition, and an answering machine—all over a single telephone line—this reliable fax modem has it all covered. Aug 95

PRINTERS

★★★★ **Apple Color StyleWriter 2400, Apple Computer, 408/996-1010, \$525.** Economical, Quick-Draw-based color ink-jet printer offers gorgeous color output plus fast black-and-white printing. If you don't need DOS/Windows compatibility, it's a good buy. Apr 95

★★★★ **HP LaserJet 5MP, Hewlett-Packard, 800/752-0900, \$1299.** This laser printer meets the high demands of small businesses and home offices with features such as 600-dpi resolution, support for Adobe PostScript Level 2, and automatic-input switching between DOS/Windows machines and Macintosh networks. Memory Booster software makes good use of the printer's 3MB of RAM. Jul 95

★★★★ **LaserWriter 16/600 PS, Apple Computer, 408/996-1010, \$2399.** If speed is what you need, this fine printer is it. The price is reasonable. Mar 95

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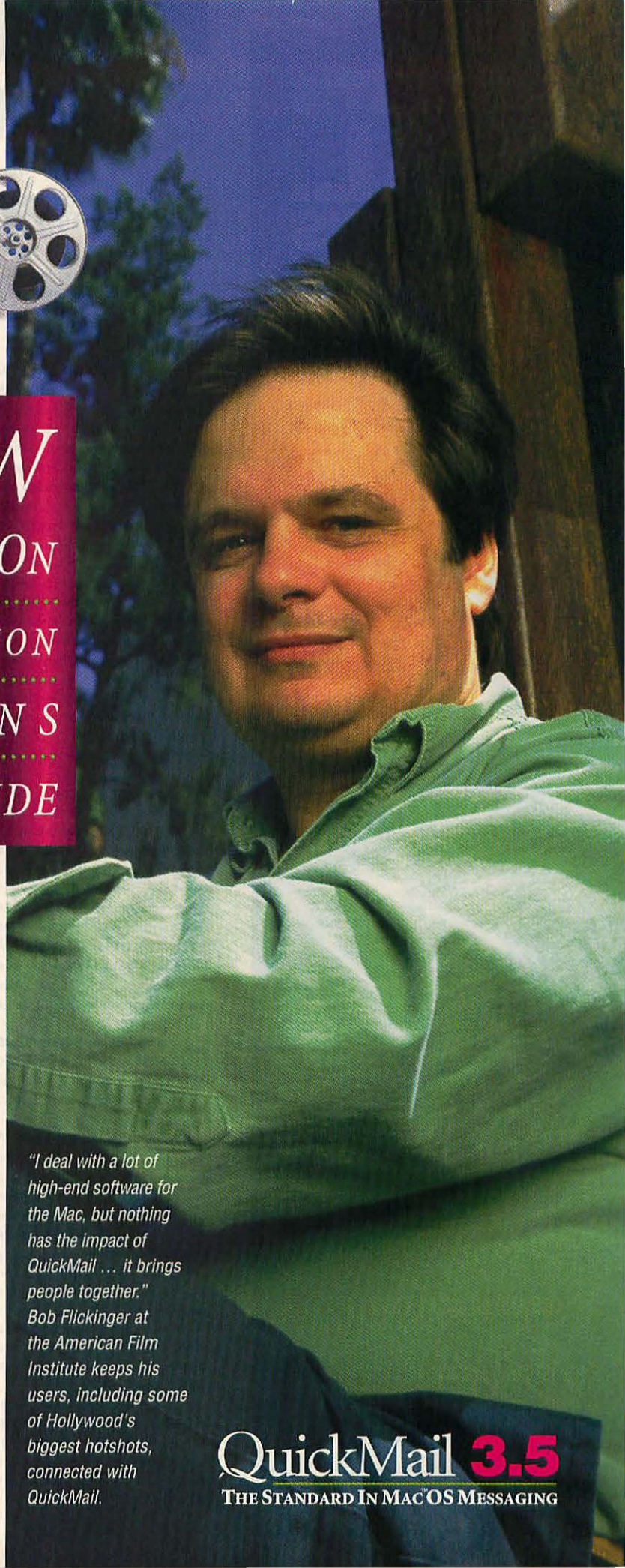
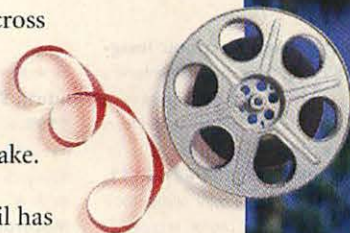
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BUYERS' TOOLS

Star Ratings

★★ **Nikon Coolprint, Nikon Electronic Imaging, 516/547-4355, \$2350.** Color dye-sub printer is a good way to make small color proofs of digital images (only A6 paper is supported). It's fast, but print quality suffers from a low resolution and poor color matching. Sep 95

★★★ **Phaser 140, Tektronix, 503/627-7111, \$1695.** If you're looking for a capable color printer for a small workgroup, this ink-jet is a great choice. It provides only 17 resident fonts, however. Apr 95

★★★ **Pictura 310, Fargo Electronics, 612/941-9470, \$4995; optional Adobe Level 2 PostScript package \$795.** This tabloid-size thermal-wax and dye-sub printer is affordable and produces acceptable print quality, but it's not to dye for. Its color-matching capabilities don't measure up to those of its competitors. Jul 95

★★★ **PrimeraPro, Fargo Electronics, 612/941-9470, \$1895.** The photo-realistic output of this thermal-wax and dye-sublimation printer beats that of any other printer in the price range. But with expensive consumables and slow print time, it's best suited for routine thermal-wax use and occasional dye-sub work. Jan 95

★★★★ **StyleWriter 1200, Apple Computer, 408/996-1010, \$269.** Newest model of Apple's inexpensive ink-jet printer offers improved print quality, better halftones, tiled layouts, and four new fonts. Sep 95

★★★★ **Stylus Color, Epson America, 310/782-0770, \$699.** This color ink-jet printer is no speed demon at 720-dpi resolution, you need special paper for hires output, and it offers no color correction. But who cares? The print quality is superb and the price is reasonable. May 95

SCANNERS

★★★ **Fujitsu ScanPartner Jr., Fujitsu Computer Products of America, 408/432-6333, \$499.** Compact scanner with good OCR software makes converting hard-copy documents to editable text a snap. It's an economical and fuss-free scanning solution, but its page-feeder doesn't offer the flexibility of a flatbed scanner. Jul 95

★★★★ **HP ScanJet 3c, Hewlett-Packard, 208/323-2551, \$1179.** Higher resolution (600 dpi) and a broader dynamic range (30 bit) distinguish this color scanner from its predecessor. The only number that didn't go up is the price. Oct 95

★★ **Pro Imager 4000, PixelCraft, 510/562-2480, \$2995.** This midrange scanner delivers excellent highlight detail but produces a lot of noise in shadow areas. It doesn't measure up to similarly priced competitors in speed or image quality. Jun 95

★★★★ **Pro Imager 8000, PixelCraft, 510/562-2480, \$12,995.** Demanding prepress users will like this scanner's tonal sensitivity, high resolution, large image area, and impressive speed. Although its color-adjustment software needs work, this is a superb scanner. Jun 95

★★★★ **Reli 4830T, Relisys, 408/945-9000, \$1699.** The good: high-quality scans, midrange price; lots of bundled software. The bad: slow performance, quirky scanning software. The upshot: If you can live with the cons, this scanner is a bargain. Jun 95

★★★★ **SprintScan 35, Polaroid, 617/386-2000, \$2495.** Compact, efficient scanner offers a cost-effective way to transfer images from 35mm slides or negatives to a Mac. Jun 95

★★★★ **Vista-58, Umax Technologies, 510/651-8883, \$995 (LE+); \$1095 (Pro+).** This 24-bit color flatbed scanner has a lot of useful features for its low price, including crisp line-art scans and speedy previews. It's a bargain if you can overlook its slow OCR scanning and some scanning-software bugs. Jul 95

SYSTEMS/STORAGE

★★★★ **Brainstorm Accelerator for the Macintosh SE, Brainstorm Products, 415/988-2900, \$199.** Your SE will never be a Power Mac or even a IIsi, but if your budget won't buy a new Mac, you can't do better than this accelerator. Mar 95

★★★★ **Envoy Wireless Communicator, Motorola, 800/894-7353, \$1000 to \$1500.** With its intelligent mail agents and well-integrated RadioMail software, this Magic Cap-based PDA was our reviewers' first choice for sending and receiving E-mail. Aug 95

★★★★ **Joule System, La Cie, 503/520-9000, Price varies by component.** Plug-and-play tower lets you stack drives—hard drives, removable media, and others—atop a base unit, making it easy to buy extra storage or swap modules with other Joule towers. Joule drive prices are generally slightly higher than for comparable drives. Feb 95

★★★★ **Marco Wireless Communicator, Motorola, 800/894-7353, \$900 to \$1400.** This Newton OS-based PDA includes a radio modem. The RadioMail service offers E-mail, paging, outgoing faxes, and a news service, but it's pricey. Aug 95

★★★★ **Master CD Pro, MicroNet Technology, 714/453-6000, \$4995.** With support for multiple formats, this quad-speed, multisession, recordable CD-ROM drive is a good tool for professional CD production. It ain't cheap, though. Aug 95

★★★★ **MessagePad 120, Apple Computer, 408/996-1010, \$599, 2MB model \$699.** Apple's PDA offers about three times the storage space of the other PDAs tested, and its design is great, but handwriting recognition still needs work. With support for vertical applications, it's good for specialized tasks like medical work. Aug 95

★★★★ **Power 100, Power Computing, 512/258-1350, \$2599 (base model).** The first Macintosh clone offers all the power of a Macintosh 8100/100 for about \$700 less. It offers the speed, expandability, functionality, and compatibility Macintosh users expect, with the customer support and prices we've wanted for so long. Aug 95

★★ **PowerBook 150, Apple Computer, 408/996-1010, \$1449.** Fast, lightweight portable is minimalist in the extreme, with no video-out, ADB, Ethernet, or microphone. Unfortunately, the price is less minimalist. Dec 94

★★★★ **Power Macintosh 8100/110, Apple Computer, 408/996-1010, \$6379.** High-end users who have invested heavily in NuBus cards can protect their investment with this top-of-the-line Power Mac. Mar 95

★★★★ **Power Macintosh 9500/132, Apple Computer, 408/996-1010, \$5799.** If you need speed, expansion, and a massive amount of memory, this is the Mac for you. But with no built-in video, the limited availability of PCI cards, and RAM slots that are hard to reach, this one's a poor choice for general use. Oct 95

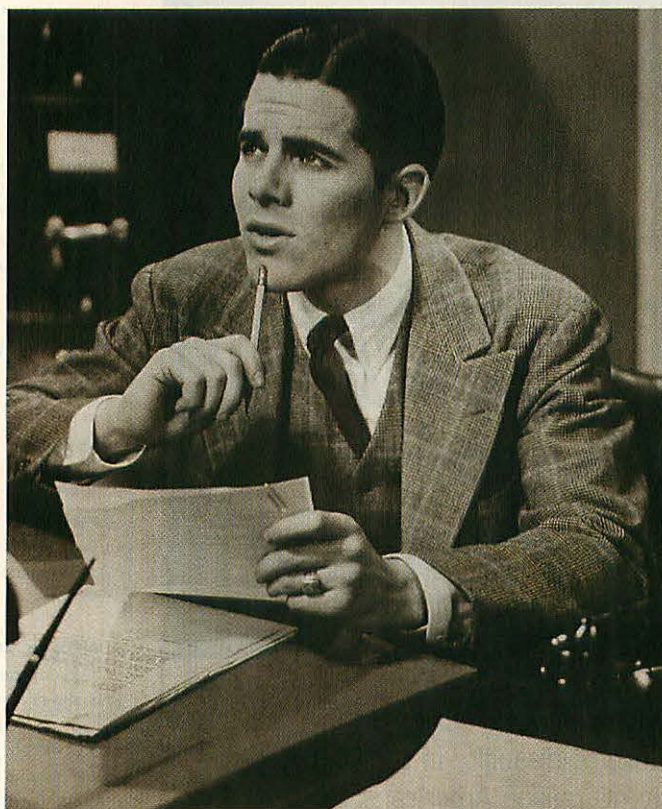
★★★★ **Quadra 630, Apple Computer, 408/996-1010, \$1279.** Fast, inexpensive, expandable 33MHz 68040 machine may be the last 680X0-based desktop Macintosh, but it's one of the best entry-level Macs ever. Nov 94

★★ **RCD-1000, Pinnacle Micro, 714/727-3300, \$1695.** The software for this CD-Recordable drive is easy to use, but it's too unreliable to use as a day-to-day backup system. Jun 95

★★★★ **SledgeHammer8000FT, FWB, 415/325-4392, \$23,599.** This fault-tolerant Level 5 RAID array will help you maintain constant access to your stored information. Our reviewer couldn't tolerate a few of its faults, however, including its lack of support for RAID 3. Sep 95

★★★★ **Sony Magic Link, Sony, 800/571-7669, continues**

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\$699.95. Using this PDA for short E-mail messages, phone calls, and appointment scheduling is a breeze, but only a handful of applications have been developed for it so far. Although the Personal Link messaging service is relatively inexpensive, its Telescript support is limited to other devices that use the Magic Cap OS. **Aug 95**

★★★★ **Zip Drive, Iomega, 801/778-1000, \$199.95; 100MB cartridge \$19.95.** Weighing in at about a pound, this external drive combines speedy performance, convenience, and economy in an attractive package. It uses 100MB cartridges the size of a floppy disk, and boasts near hard-drive speeds. What's not to like? **Jul 95**

VIDEO/DISPLAY

★★★★ **Apple Multiple Scan 15 Display, Apple Computer, 408/996-1010, \$509.** The tridot tube of this 15-inch monitor provides a sharp and accurate image, but reflects some glare. The built-in stereo speakers reproduce sound nicely. **Feb 95**

★★★★ **EAsycolor 24/1360, EA Research, 510/867-0967, \$1699.** Video board offers Photoshop CMYK-mode acceleration and high-resolution support for multisynchronous monitors. Its software is minimal and its QuickDraw acceleration only adequate, but it's an affordable solution. **Aug 95**

★★★★ **FlexCam, VideoLabs, 612/988-0055, \$595.** Small, unobtrusive desktop video camera has a flexible gooseneck for positioning. **Dec 94**

★★★★ **Multiscan 15sf, Sony Computer Peripheral Products, 408/432-0190, \$569.95.** Trinitron monitor has a flat screen that displays sharp, bright, and accurate images. With good antiglare coating and adjustable image tilt, it's worth looking at. **Feb 95**

★★★★ **MultiSync 3V Monitor, NEC Technologies, 708/860-9500, \$495.** With a bright display and great image quality, this monitor delivers a fine picture at a moderate price. **Feb 95**

★★★★ **PaintBoard Prism GT, RasterOps, 408/562-4200, \$999.** If you want QuickDraw acceleration and plentiful software options, this video board is a good choice, but it doesn't offer Photoshop acceleration. **Aug 95**

★★★★ **Panelight ZX, Panelight Display Systems, 415/772-5800, \$3995 to \$4695.** LCD panel offers vivid images at a comparatively low price. It's a great choice for presenters. **Mar 95**

★★★★ **QA-1500, Sharp Electronics Corporation, 201/529-8731, \$5795.** LCD panel's display is crisp and flicker-free, but placing a presentation on its PC Card is cumbersome. Cheaper products are available. **May 95**

★★★★ **QuickCam, Connectix Corp., 415/571-5100, \$149.95.** For as little as \$99 (street price), this tiny, fun, easy-to-use, digital video camera lets users experiment with video input for making QuickTime movies or capturing still images. **Mar 95**

★★★★ **SpigotPower AV, Radius, 408/541-6100, \$999.** Make full-screen, 30-fps movies with this first-rate video-compression-and-decompression board and accompanying JPEG software. **Jun 95**

★★★★ **Thunder IV GX 1360, Radius, 408/434-1010, \$2999.** With its impressive QuickDraw and Photoshop acceleration and versatile software, this video board was our reviewer's first choice. It's more expensive than the competition, however. **Aug 95**

★★★★ **VideoDirector 1.5, Gold Disk, 408/782-0200, \$199.95.** Low-end video-editing system lets you log, edit, and organize videotape footage, copying selections from a source deck to a record deck. A good choice for nonprofessionals. **Jun 95**

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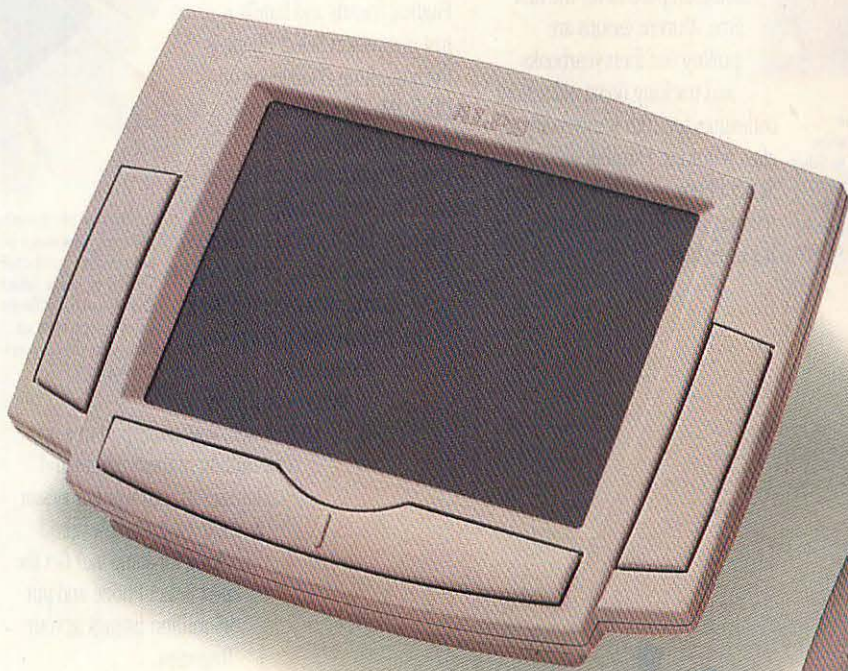
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SPECIAL HARDWARE AND SOFTWARE BUYING OPPORTUNITIES

Selected and edited by Charles Barrett

The following listings include both time-sensitive promotions and open-ended offers being sponsored by Macintosh vendors and their resellers. Each listing indicates which products have been awarded a star rating in *Macworld's Reviews* (products rated ★★ or lower are not eligible for inclusion), have been selected as an **Editors' Choice**, or have won a **World-Class** award. In some cases, the editorial evaluation quoted is for an earlier product version. The Ⓢ symbol indicates that the product is Power Mac related. Except where otherwise indicated, prices given are suggested retail prices.

When placing an order, please mention that you saw the offer in *Macworld*. Should any problems arise, contact the *Streetwise Shopper* editor by fax (415/442-0766), phone (415/978-3241), or mail (*Macworld*, 501 Second St., San Francisco, CA 94107).

Vendors and resellers desiring to have products and services included in this section are encouraged to contact the *Streetwise Shopper* editor with particulars.

BUNDLES

3D XT + StrataClip Strata is including a \$99 StrataClip library of 3-D models free of charge with its new 3D XT, a \$99 XTension that provides QuarkXPress users with 3-D modeling and rendering capabilities within XPress. Call 800/788-7557 for more information. *Offer expires 11/2/95.*

Andromeda Photoshop Filters Andromeda is offering a bundle of Photoshop plug-ins consisting of its \$129 Series 1 Photography filters and \$129 Series 2 Three-D Filter, plus its \$159 Series 3 Screens for special-effects reproduction and line conversions. All three are available for \$245 by calling 800/547-0055. *Offer good through at least 10/31/95.*

Authorware 3.0 + Director Multimedia Studio Macromedia will provide a suite of products, designed for the creation of interactive content, free of charge to customers who purchase its \$4995 commercial authoring software (Feb 94 ★★★★★ for Authorware Professional 2.0.1). Director Multimedia Studio includes Ⓢ Macromedia Director 4.0, a \$1195 multimedia and animation program (Sep 94 ★★★★★ and 1994 **World-Class** for 680X0 version); Ⓢ MacroModel 1.5, an \$895 three-dimensional modeler (May 94 ★★★★★ for initial 680X0 version); SoundEdit 16 version 1.0, a \$379 digital audio editor (Dec 94 ★★★★★); and Ⓢ Fractal Design's Painter 3.1, a \$499 image-creation program (Apr 95 ★★★★★ for version 3). Customers will also receive a free copy of Ⓢ Extreme 3D, a \$695 replacement of Macromedia's MacroModel; \$695 Three-D animation and rendering tool; and \$495 Swivel 3D Professional object-design and -modeling software. Call 800/326-2128 for more information.

Avid VideoShop 3.0 + TrueMotion-S Horizons Technology and Avid Technology are offering a \$599 bundle consisting of Horizon's \$499 video-compression software and Avid's \$395 QuickTime video-editing program (Feb 94 ★★★★★

for version 2.0). Call 800/828-3808 for more information.

HyperCard 2.3 + AddMotion II Apple Computer is including a free copy of Motion Works International's \$149.95, 24-bit color paint, animation, and sound extension with its \$129 HyperCard authoring tool (Nov 95 ★★★★★). AddMotion integrates seamlessly with HyperCard, providing a media controller for sequencing animations and a sound-recording/editing environment.

Internet Plus CD-ROM Wholesale is offering this suite that includes over \$300 worth of online time and software for six commercial online services—including CompuServe's Information Manager (WinCim), Prodigy, Netcom, Imagination, Novalink, and Holoslip—for under \$50. The package of four CD-ROMs also includes a two-hour multimedia Internet tutorial by expert Dick Rubinstein; a World Wide Web directory of 15,000 sites; and Wayzata Technology's Internet Surfer with its commercial versions of Eudora Email, NCSA Mosaic/WWW Browser, NCSA Telnet, and Gopher software. Call 800/801-7513 for more information.

SyQuest EZ135 Drive Cartridges + DiskFit Direct + Ⓢ PowerMerge LE 2.5 + Ⓢ Paint Alchemy 2.0 + Storage Utilities SyQuest Technology is bundling the following software free of charge on all its EZ135 Drive cartridges: Dantz Development's \$49.95 DiskFit Direct backup program (see Apr 94 *The Desktop Critic*), the \$89.95 limited edition of Leader Technologies' \$129 PowerMerge file-synchronization utility (Aug 94 ★★★★★ for the 680X0 version 2.0), and Xaos Tools' \$199 Paint Alchemy effects tool (Sep 95 ★★★★★). A limited edition of La Cie's \$99 Storage Utilities, which consists of the Silverlining Lite driver utility and VirtualDisk Lite cartridge-cataloging program, is also included. Upgrades to full-function versions of Storage Utilities and PowerMerge LE are available for a nominal fee.

Ⓢ Warp Factor 135 or 150 Accelerator + Speed Doubler 1.0 XLRB Corporation is including Connectix's \$99 Speed Doubler, a 680X0 emulator for running nonnative code, free of charge with both its \$119 Warp Factor 135 for the Power Mac 6100, 7100, and 8100, and its \$299 Warp Factor 150 for the Power Mac 9500, 8500, and 7500. The package includes a new control panel that monitors processor speed and detects the presence and size of Level 2 caches. Call 800/206-7926 for more information.

SIDEGRADES/UPGRADES

Ⓢ CanOpener 3.0; Ⓢ RescueTxt 1.0; Ⓢ Scorpio 1.0 Abbott Systems is offering registered owners of any of its products the following discounts: CanOpener, a \$125 file-opening utility (May 95 ★★★★★ for 680X0 version), for \$32; RescueTxt, a \$79 text-recovery utility (Apr 95 ★★★★★), for \$29; and Scorpio, a \$29 word processor, for \$19.95. Shipping free on all orders. Call 800/552-9157.

Peace of Mind 3.0 DiagSoft is offering this \$99.95 hardware diagnostic tool (Jun 93 ★★★★★ for version 1.2.2) to

users of any other system-utility package, for \$49.95. Call 800/342-4763 to order. *Offer expires 10/31/95.*

ReadySetGo GX 7.0.3 Manhattan Graphics is offering this new version of its \$395 page-layout program (Oct 94 ★★★★★ for version 6.0.2) for \$149.95 to registered users of products such as Publish It, Personal Press, PageMaker, and QuarkXPress. Call 800/572-6533 for more information.

SPECIAL DISCOUNTS/REBATES/ FREE TRIALS/OFFERS

Art Press Johnson-Grace Company is offering commercial publishers a free, trial version of this new authoring system that compresses graphic images for fast download over the Internet and online services. Art Press can be downloaded from the Internet (<http://www.jgc.com>). Call 714/759-0700 for more information. *Offer expires 12/31/95.*

Ⓢ DayStar 100MHz PowerPC Upgrades DayStar Digital is offering a \$200 rebate on its \$1299 100MHz PowerPro 601 and Turbo 601 PowerPC upgrades for the Quadra, Centris, and Mac II series. To qualify, purchasers must send in warranty-registration card and copy of dealer invoice bearing a purchase date of no later than 10/15/95. *Offer good through at least 11/1/95.*

Mac User's Set The Mac Professional's Book Club is offering books worth \$104.89 for \$4.95 (plus s/h) to new members who agree to purchase one additional book from the hundreds available, over a 12-month period. The Mac User's Set consists of IDG Books' *Macworld Mac and Power Mac Secrets* (with three disks) by David Pogue and Joseph Schorr; Que's *Upgrading and Repairing Macs*; and Hayden Books' *Internet Starter Kit for Macintosh*, third edition (includes MacTCP, Eudora, MacWeb 1.0, InterSLIP, Anarchie 1.5, and StuffIt Expander software), by Adam C. Engst. A bonus gift of *The Mac Is Not a Typewriter* by Robin Williams is also included. Call 800/854-3239 to order.

QX-Tools Extensis is offering this \$149 collection of ten QuarkXPress XTensions for an introductory price of \$99. Includes Word-style tool bars, plus tools for navigating, applying character styles, scaling multiple objects, managing layers and objects, printing discontinuous page ranges, and applying Photoshop filters. Call 800/796-9798 for more information. *Offer good through at least 11/1/95.*

Ⓢ Read-It OCR 5.5 Olduvai is offering this Power Mac version of its \$395 optical character recognition package for an introductory price of \$199. Competitive upgrades from all other OCR products are available for \$59. Call 800/548-5151 to order direct. *Offer expires 1/31/96.*

Tracer ScanVec is offering this new \$795 program—which vectorizes bitmapped images into Bézier curves for use in such applications as Adobe Illustrator and Macromedia FreeHand—at an introductory price of \$495. Call 800/866-6227 (or fax-back line at 800/766-6644) for more information. *Offer expires 10/31/95.* **m**

John and his favorite pop-up menu.

John used to do business with a phone connected to his ear. Now he does it with a fax board connected to a modem.

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Fax the sales department!
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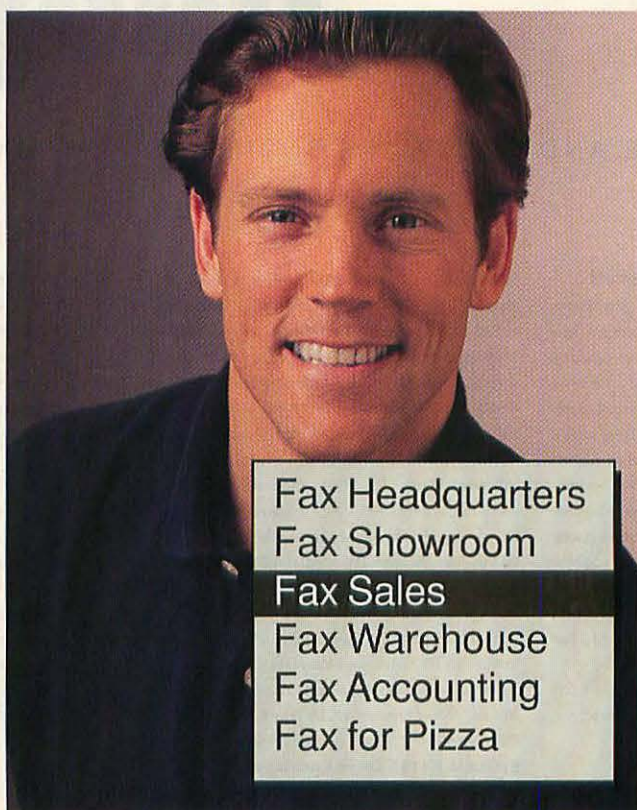
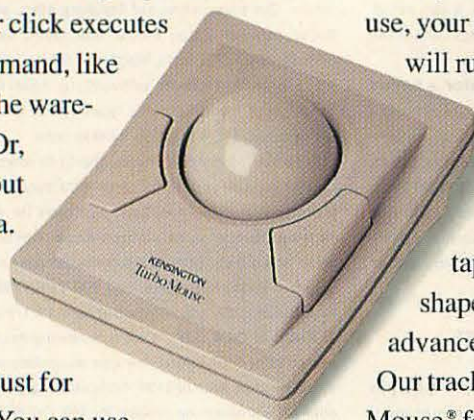
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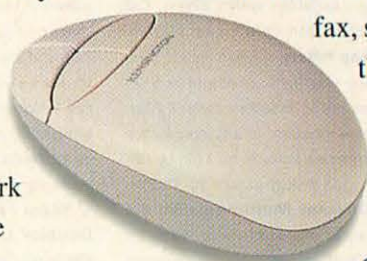
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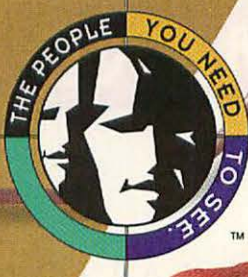


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- 01 ☐ 1000+
02 ☐ 999 - 100
03 ☐ 99 - 25
04 ☐ Under 25
- B. Which of the following computers are installed at this entire work-site? (Check all that apply.)
- 05 ☐ Apple Workgroup Servers/Mac Quadra-series
06 ☐ Mac Centris-series/II-series/LC III/Performa 600/450/SE 30
07 ☐ Mac LC/LC II/Performa 430/405/400/200/Classic-series/SE/Plus/512K/128K/Portable
08 ☐ Mac PowerBook-series/Duo-series
- C. What is the total number of Macs installed at this entire work-site? (Check one.)
- D. For how many Macintosh computers within this entire work-site do you have purchase involvement for products and/or services? (Check one.)
- | | | |
|-----------|-----------------------------|-----------------------------|
| | C | D |
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| None | <input type="checkbox"/> 14 | <input type="checkbox"/> 20 |
- E. In which ways are you ever involved in purchase decisions for Macintosh products at this entire work-site? (Check all that apply.)
- 21 ☐ Initiate/Determine need for product/capabilities/features
22 ☐ Evaluate, recommend, or approve brands/models
23 ☐ Evaluate, recommend, or approve purchase source
24 ☐ Authorize purchases
- F. Over the next 12 months, how much will this entire work-site spend on Macintosh products and/or services? (Check one.)
- 25 ☐ \$1 million or more
26 ☐ \$999,999 - \$500,000
27 ☐ \$499,999 - \$100,000
28 ☐ \$99,999 - \$50,000
29 ☐ \$49,999 - \$10,000
30 ☐ Under \$10,000
- G. Considering the entire work-site, which of the following Macintosh hardware and software products are currently installed? (Check all that apply.)
- 31 ☐ Business software (Word processing, spreadsheet, database, etc.)
32 ☐ Graphics/publishing software
33 ☐ Monitors/displays
34 ☐ Printers/scanners
35 ☐ Networking/communications hardware and/or software
36 ☐ Multimedia/AV hardware and/or software
37 ☐ Mobile computing products (PowerBooks, peripherals, software, etc.)
- H. What is your primary job function? (Check one.)
- 38 ☐ Computer Reseller/VAR/VAD
39 ☐ MIS/DP/IS/Network Management
40 ☐ Engineering
41 ☐ R&D/Scientific
42 ☐ Corporate/General Management
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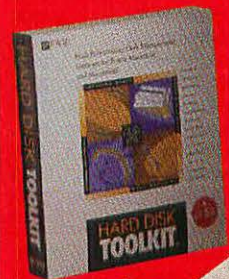
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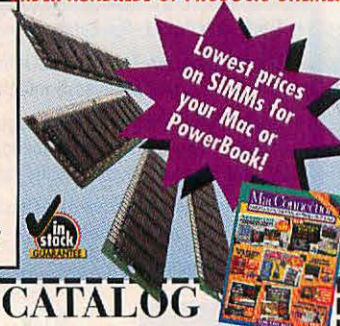
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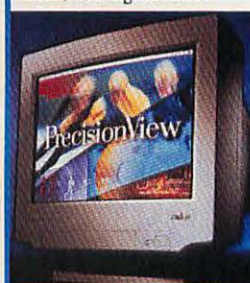
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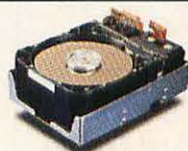


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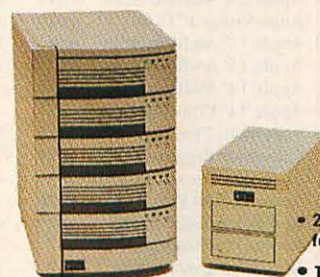
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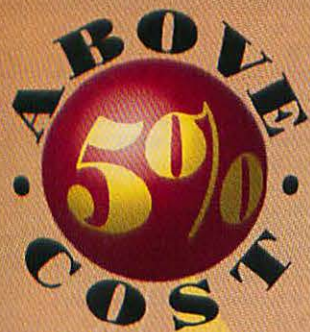


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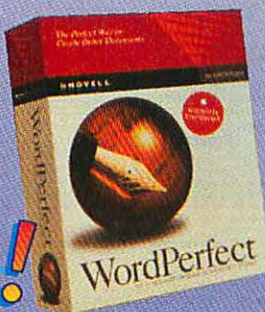
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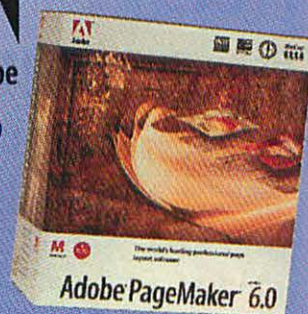
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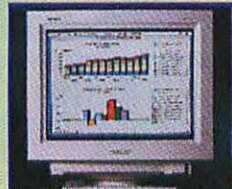
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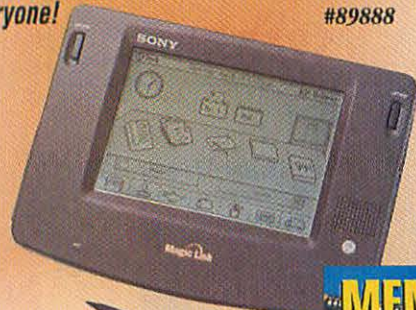
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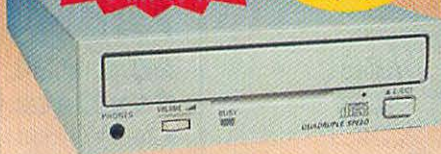
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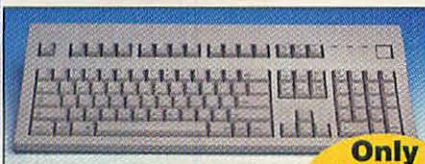
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Hewlett-Packard Desk Writer 320 with Sheet Feeder

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Microtek ScanMakerIIS

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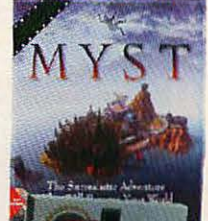
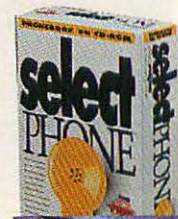
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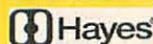
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DSP3053 535 MB	9.5 ms	5400	512K	5 Year	210	270
Fireball 540 MB	10 ms	5400	128K	3Year	175	235
Lightning 730 MB	11 ms	4500	128K	2 Year	225	305
Trailblazer 850 MB	11 ms	4500	128K	3 Year	235	295
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Capella 2.1 GB	8 ms	5400	1024K	5 Year	725	795
Grand Prix 4200 MB	8.6 ms	7200	512K	5 Year	1055	1115
Atlas 4.3 GB	8 ms	7200	1024K	5 Year	1355	1415

Capacity	Size	Access	Cache	Warranty	Int.	Ext.
Daytona 256 MB	2.5"	17ms	128K	1 Year	195	255
Daytona 341 MB	2.5"	17ms	128K	1 Year	245	305
Daytona 514 MB	2.5"	14ms	128K	1 Year	375	435

MICROPOLIS MICROPOLIS

Capacity	Seek	RPM	Cache	Warranty	Int.	Ext.
M4221 2.1 GB	8.5 ms	7200	512K	5 Year	865	925
M3243 4.3 GB	8.5 ms	7200	512K	5 Year	1295	1355
M1991 9.0 GB	11 ms	5400	512K	5 Year	2095	2195
M4221W 2.1 GB	8.5 ms	7200	512K	5 Year	965	1035
M3243W 4.3 GB	8.5 ms	7200	512K	5 Year	1395	1465
M1991W 9.0 GB	11 ms	5400	512K	5 Year	2199	2299
M4221AV 2.1 GB	8.5 ms	7200	512K	5 Year	915	975
M3243AV 4.3 GB	8.5 ms	7200	512K	5 Year	1325	1385
M1991AV 9.0 GB	11 ms	5400	512K	5 Year	2210	2310
M4221WAV 2.1 GB	8.5 ms	7200	512K	5 Year	1075	1135
M3243WAV 4.3 GB	8.5 ms	7200	512K	5 Year	1465	1535
M1991WAV 9.0 GB	11 ms	5400	512K	5 Year	2295	2395

5 Year - 24 Hour Advance Replacement Warranty on all Micropolis Mechanisms... Call for details.

LT Super Capacity External StQrage

3.5" Stackable/Removable AV Disk Subsystems

MDAV2100 2.1 GB	8.9 ms	7200	512K	5 Year	Call for the most
MDAV4300 4.3 GB	8.9 ms	7200	512K	5 Year	competitive prices!

Fall Blowout Specials

Quantum 340MB.....	Int. \$125 Ext. \$185
LPS340, 4500 RPM, 11ms seek, 128K cache, 2 year warranty	
Quantum 535MB.....	Int. \$210 Ext. \$270
DSP 3053, 5400 RPM, 9.5 ms seek, 512K cache, 5 year warranty	
Quantum Fireball 1080.(New MR Head Technology).....	Int. \$335 Ext. \$395
QFB1080s, 5400 RPM, 10 ms seek, 128K cache, 5 year warranty	
Fujitsu 1.2GB.....	Int. \$375 Ext. \$435
M1606s, 5400 RPM, 10 ms seek, 3 year warranty	
Micropolis 2.1GB.....	Int. \$865 Ext. \$925
M4221, 7200 RPM, 9 ms seek, 512K cache, 5 year warranty	
Seagate Barracuda 4.2GB.....	Int. \$1440 Ext. \$1500
ST15150N, 7200 RPM, 8 ms seek, 1024K cache, 5 year warranty	

Capacity	Seek	RPM	Cache	Warranty	Int.	Ext.
Hawk 2LP 1.2 GB	ST15250N 9.5ms	5400	512K	5 Year	\$475	\$535
Hawk 4 4.2 GB	ST15250N 9ms	5400	512K	5 Year	1165	1225
Barracuda 2.4 GB	ST32550N 8ms	7200	1024K	5 Year	975	1035
Barracuda 4.2 GB	ST15150N 8ms	7200	1024K	5 Year	1440	1500
Barracuda 2.4 GB	ST32550W 8ms	7200	1024K	5 Year	1035	1095
Barracuda 4.2 GB	ST15150W 8ms	7200	1024K	5 Year	1575	1635
Elite 9.0 GB	ST410800N 11ms	5400	1024K	5 Year	2320	2420

Capacity	Seek	RPM	Cache	Warranty	Int.	Ext.
M1603 400 MB	10ms	5400	512K	3 Year	195	250
M1606 1.2 GB	10ms	5400	512K	3 Year	375	435
M2915 2.1 GB	10ms	5400	512K	3 Year	925	985

ProDirect, Inc. 6824 Washington Ave. South Eden Prairie, MN 55344

REMOVABLE STORAGE

Capacity	Seek	RPM	Int.	Ext.
88 MB SQ5110C	20ms	3200	285	345
200 MB SQ5200	18 ms	3200	405	465
270 MB SQ3270	13.5ms	3200	405	465

2 Year Warranty on all SyQuest Drives
SyQuest drives come complete with a cartridge (Formatted or Unformatted) and the latest SCSI 4.3 compatible software.

Capacity	Model	Warranty	Price
44 MB	SQ400	5 year	\$41
88 MB	SQ800	5 year	\$47
105 MB	SQ310	5 year	\$53
200 MB	SQ2000	5 year	\$75
270 MB	SQ327	5 year	\$63

SCSI-2 ACCELERATORS

Atto	
Silicon Express 2	525
SCSI 1 & 2 support transfer rates up to 20MB/sec, supports multiple block access, takes advantage of parallel processing capability, ideal for graphic design, multimedia applications and Web!	
Silicon Express 4	895
Fast/Wide SCSI 2 SCSI 2 accelerator card for Apple's NuBus based computers. Supports fastwide SCSI 2 (16 bit) transfer rates up to 20MB/sec, and fast SCSI 2 (8 bit) transfer rates up to 10 MB/sec. Full 16 bit wide support for the latest drives and disk arrays. Fully compatible with all existing SCSI 1 drives. Formatting software is included. 5 Year Warranty.	
Express PCI	Call
Single channel RISC based PCI to Fast/Wide SCSI 3 accelerator card for Apple's NuBus based computers. Ideal solution for your audio, video, progress, and real time applications. Transfer rates up to 20MB/sec. Formatting software included. 5 year warranty.	
Remus RAID Software	Call

TAPE BACKUP DRIVES

HEWLETT PACKARD	
2.0 GB	835 885
15MB/min., 4mm media, 1 Year warranty	
3-5 GB	995 1055
45MB/min., 4mm media, 1 Year warranty	
4-10 GB	1225 1285
HP1533, 60MB/min., 4mm media, 1 Year warranty	
20-50 GB Auto Tape Loader	2995 3095
HP1553, 60MB/min., 4mm media, 1 Year warranty	
Exabyte	
2-5 GB	1395 1485
8205XL, 263K/sec., 8mm media, 1 Year warranty	
7-14 GB	2130 2190
8505XL, 500K/sec, 8mm media, 1 Year warranty	

All tape backup drives include 1 piece of media and Retrospect backup software.

MEMORY PRODUCTS

Always call for the most competitive pricing on memory!	
Memory	Centris & Quadra
2x8x80	4MB 60/70ns
4x8x80 60/70ns	8MB 60/70ns
4x8x80FX	16MB 70ns
16x8x80LowProfile	32MB 60ns
16x8x80 FX	VRAM 256K/512K

Mac 9500 DIMMs in stock and ready to ship...Call for pricing!

Powerbook Memory	
520,520c,540,540c	
4MB,8MB,16MB,32MB	
140,170,160,165c,180,180c,Duos	
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Lifetime warranty on all memory products!!!

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CLUBMAC REMOVABLE STORAGE

ClubMac 5.25" 200MB Removable



\$379

C109 1222

Read, Write and **FORMAT**
Compatible with 200MB,
88MB, and 44MB Cartridges.



ClubMac 3.5" 105MB Removable

105MB

\$189

- Fast 14.5ms average seek time
- 3,600 RPM rotational speed
- Data transfer rate up to 4MB/sec (sync)
- 105 Cartridge is compatible with 270 SyQuest Drive
- IN STOCK NOW!



February 1995

C109 1222 **5.25" ClubMac 200MB**

\$379

C109 1221 **5.25" ClubMac 88MB**

\$269

All SyQuest drives include SCSI Director formatting software, necessary cables for "plug-and-play" and documentation. All SyQuest drives include a 30-Day Money Back Guarantee and TWO Year Warranty.



C109 1005

3.5" ClubMac 105MB

includes FREE Formatted 105MB Cartridge

\$189

C109 1224

3.5" ClubMac 270MB

\$389

GENUINE SYQUEST CARTRIDGES				
Part Number	Media	Qty 1	Qty 10	Qty 20
S198 1010	44MB	\$42..	\$41..	\$40..
S198 1011	88MB	\$47..	\$46..	\$45..
S198 1012	200MB	\$75..	\$73..	\$71..
S198 1013	105MB	\$35..	\$34..	\$34..
S198 1014	270MB	\$60..	\$59..	\$58..



ON CARTRIDGES

* Warranty after first year, handled by SyQuest.

CLUBMAC HARD DRIVE STORAGE



365MB

Internal Lightning
C109 1155

\$319

Internal Fireball
C109 1202

1.0GB

\$99

30 DAY

ACTIVE TERMINATION

Quantum

Part No.	Internal	Part No.	External
C109 1155	\$99	C109 1104	\$159
C109 1200	\$189	C109 1201	\$249
C109 1154	\$209	C109 1102	\$249
C109 1206	\$249	C109 1207	\$309
C109 1202	\$319	C109 1203	\$379
C109 1213	\$749	C109 1212	\$809
C109 1159	\$1059	C109 1103	\$1119

Incredibly Low Price

7200 RPM

4.3GB

SHIPPING WITH

ACTIVE TERMINATION

\$1059

Internal Grand Prix
C109 1159

2.5" DAYTONA DRIVES



\$349

514MB Int.

Capacity	Access	Internal	External
341MB	17ms	\$249	\$369
514MB	17ms	\$349	\$469

CLUBMAC CD-ROM DRIVES

ClubMac 2X CD-ROM C109 9550

- 300KB/sec data transfer rate
- 350ms average access time
- Flip Top Lid
- LED light, headphone jack
- Volume control
- Light weight
- ChasMac's CD AutoCache driver software
- ONE Year Warranty

\$88.88

30 DAY

ACTIVE TERMINATION



ClubMac 2X CD-ROM C109 9543

- 300KB/sec data transfer rate
- 320ms average access time
- Cocky-less design
- LED light, headphone jack and RCA jacks
- ChasMac's CD AutoCache driver software
- ONE Year Warranty

\$99

30 DAY

ACTIVE TERMINATION



ClubMac 4X CD-ROM C109 9546

- 600KB/sec data transfer rate
- 190ms average access time
- Cocky-less design
- LED light, headphone jack and RCA jacks
- ChasMac's CD AutoCache driver software
- ONE Year Warranty

\$199

30 DAY

ACTIVE TERMINATION



CLUBMAC CD-ROM BUNDLE \$100

- CD-ROM BUNDLE
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- U.S. Atlas & World Atlas
- San Diego Zoo Animals
- Wyatt Earp
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ClubMac DAT Backup Drives

C109 5011

\$699

DD5-1

2.0GB

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FREE DAT TAPE

TWO Year Warranty



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Backup Software



Mac OS COMPATIBLE

DD5-2

4-8GB

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ACTIVE TERMINATION



DAT MEDIA

V010 1018 Verbatim 90M Cartridge	\$11
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V010 1009 Verbatim 128MB Optical Cartridge	\$27

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V010 1022 CD Recordable Disc 74 min.	\$10
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ClubMac 5.25" OLYMPUS 1.3GB

- 5.25" Olympus Optical Mechanism
- 29ms ave. seek time
- 3,500 RPM rotational speed

30 DAY

ACTIVE TERMINATION

Mac OS COMPATIBLE

C109 5022

\$1499

30 DAY

ACTIVE TERMINATION



CLUBMAC 3.5" OLYMPUS 230MB

- 3.5" Olympus Optical Mechanism
- 26ms ave. seek time
- 4,500 RPM rotational speed

C109 5020


\$489

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100MHz



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21" MultiSync XE21

- 21" diagonal flat square technology
- 13.8" Viewable image size
- Mac Res: 640 x 480 NI 1024 x 768 NI
- Fine 0.28mm dot pitch
- Monitor Manager
- AccuColor, Digital controls
- Energy star compliant for true energy savings

21"

\$1779



21" XE21 (N026 1010) \$1779
21" XP21 (N026 1011) \$159

15" MultiSync XV15

Outstanding performance at an affordable price

- Larger sharper images that are easier to use
- Plug and Play compatible for real performance advantages
- Energy star compliant for true energy savings
- 15" diagonal flat square technology
- 13.8" Viewable image size
- Mac Res: 1024 x 768 NI
- Fine 0.28mm dot pitch

15" XV15 (N026 1015) \$449
15" XE15 (N026 1006) \$549

15"

\$449



17" MultiSync XV17

Large Screen performance at an affordable price

- Perfect entry level business, small office/home office, home duration/entertainment
- 17" diagonal flat square display
- 15.6" Viewable image size
- Mac Res: 1024 x 768 NI
- PC Res: 1280 x 1024 NI
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- On-Screen Manager

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NEC

17"

\$729


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- Includes Mac driver software and a TWO Year Warranty

MACWORLD



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MACWORLD

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Magic PowerClock

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motherboard in just minutes, safely increasing the speed of your computer. PowerClock ships with a super quiet CPU fan. Includes fail-safe installation instructions and anti-static wrist strap.

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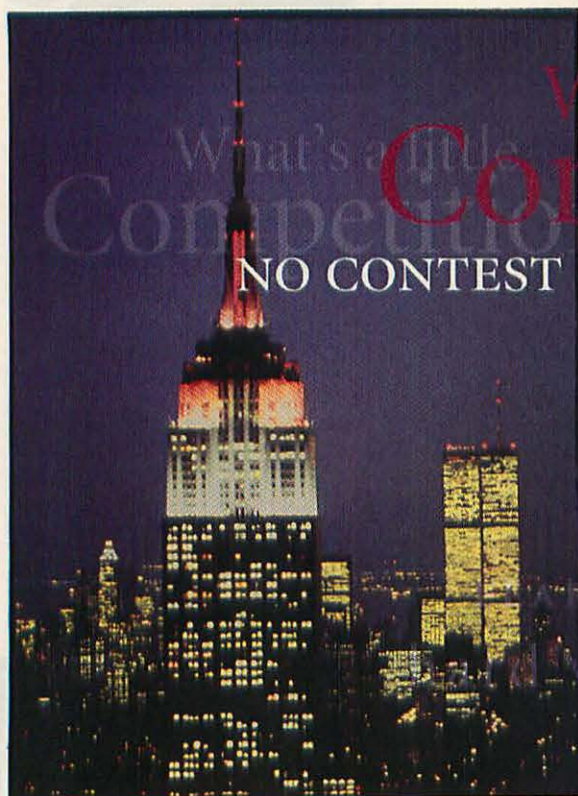
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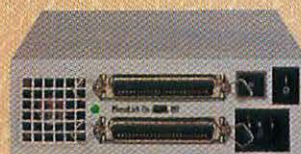
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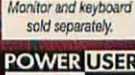
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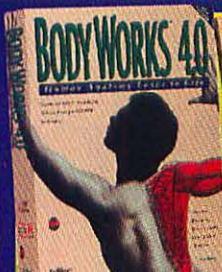
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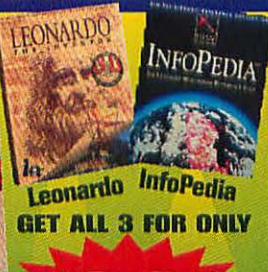
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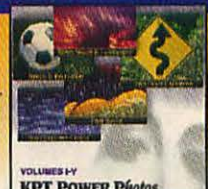
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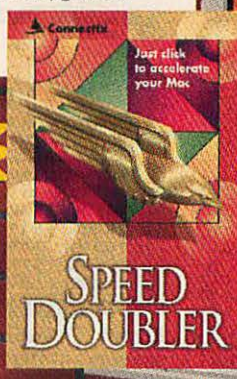
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Lightning	541 MB	11MS	128k	2 Years	4500	3.5	195	275
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Trailblazer	850 MB	14MS	128k	3 Years	4500	3.5	249	329
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Atlas	1075 MB	8MS	1024k	5 Years	7200	3.5	775	855
Atlas	2150 MB	8MS	1024k	5 Years	7200	3.5	985	1065
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3221 A/V	2050 MB	8.9MS	512k	5 Years	7200	3.5	999	1079
4221	2050 MB	8.9MS	512k	5 Years	7200	3.5	999	1079
4221 A/V	2050 MB	8.9MS	512k	5 Years	7200	3.5	999	1079
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CFP4207S	4220 MB	9MS	512k	5 Years	7200	3.5	1069	1149

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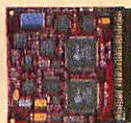
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Model	Capacity	Internal	SR2000
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APS Q 840 ³ Quantum 840 Trailblazer	811MB	249 ⁹⁵	349 ⁹⁵
APS Q 1080 ³ Quantum 1080 Fireball	1042MB	299 ⁹⁵	399 ⁹⁵
APS ST 1.0 ⁵ Seagate ST 31230N Hawk	1010MB	499 ⁹⁵	599 ⁹⁵
APS MS 1.0 ⁵ Micropolis 4210	1001MB	549 ⁹⁵	649 ⁹⁵
APS Q 1.0 ⁵ Quantum Atlas XP31070	1025MB	699 ⁹⁵	799 ⁹⁵
APS Q 2210 ⁵ Quantum Capella VP32210	2100MB	699 ⁹⁵	799 ⁹⁵
APS MS 2.0 ⁵ Micropolis 4221	1955MB	899 ⁹⁵	999 ⁹⁵
APS Q 2.0 ⁵ Quantum Atlas XP32150	2050MB	899 ⁹⁵	999 ⁹⁵
APS ST 2.0 ⁵ Seagate ST 32550N Barracuda	2047MB	999 ⁹⁵	1099 ⁹⁵
APS MS 2.0AV ⁵ Micropolis 4221AV	1955MB	999 ⁹⁵	1099 ⁹⁵
APS ST 4200 ⁵ Seagate ST 15230N	4094MB	999 ⁹⁵	1099 ⁹⁵
APS MS 4.0 ⁵ Micropolis 3243	4064MB	1299 ⁹⁵	1399 ⁹⁵
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*External case is special Full Height only.

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Model	Capacity	Internal	SR2000
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APS Q 2.0W ⁵ Quantum Atlas XP32150	2050MB	N/A	1149 ⁹⁵
APS ST 2.0W ⁵ Seagate ST 32550N Barracuda	2047MB	N/A	1149 ⁹⁵
APS MS 4.0W ⁵ Micropolis 3243	4064MB	N/A	1699 ⁹⁵
APS MS 4.0W ⁵ Seagate ST 15150N	4094MB	N/A	1699 ⁹⁵
APS Q 4.0W ⁵ Quantum Atlas XP34300	4101MB	N/A	1699 ⁹⁵

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Model	Capacity	RAID Level	Price
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* ARRRAID S8/7200 ¹	8GB	0 (Striped)	3299 ⁹⁵
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1-5 Denotes length of manufacturer's warranty in years

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APS ProDAT ²	4GB*	849 ⁹⁵	899 ⁹⁵
APS HyperDAT ²	8GB†	949 ⁹⁵	999 ⁹⁵
APS DLT40 ²	40GB†	—	*5999 ⁹⁵

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External Config.



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Model	Capacity	SR1000	SR2000
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NEC XE17 17" Color Mtr		\$1,845.99
NEC XP 15 15" Color Mtr		\$658.99
NEC XP 17 17" Color Mtr		\$1,079.00
NEC XP 21 21" Color Mtr		\$2,448.00

VIDEOGRAPHICS BOARDS

Connectix		
QuickCam		\$97.99
EA Research		
EAColor 241152 Accelerated Graphics		\$1,149.00
EAColor 241360 Accelerated Graphics		\$1,529.00
EAColor 241600 Accelerated Graphics		\$1,849.00
Focus		
LapraColor 16 for LC		\$314.00
LapraColor 16 Nubus (7")		\$314.00
Light Source		
ColorTron		\$1,149.99
Rohde		
Photo Engine		\$789.99
Precision Color BXJ 8-bit		\$459.99
PrecisionColor Pro 24X		\$999.00
PrecisionColor Pro 24XK		\$1,799.99
Spotlight Power AV		\$749.99
Thunder IV GT		\$1,354.00
Thunder IV GX 1152		\$1,799.00
Thunder IV GX 1360		\$2,299.99
Thunder IV GX 1500		\$2,799.99
Video Sprint II Type 1		\$3,499.99
VideoVision Studio 2.0		\$3,499.99
VideoVision Studio 2.0 Pro Pak w/RAID HD		\$7,999.00
Roster Ops		
PaintBoard Prism		\$659.99
PaintBoard Prism GT		\$849.99
Targa 2000 for Mac		\$4,399.00

ACCELERATORS

Dyastor		
PowerCard 66MHz		\$599.99
PowerPro 501 66MHz XSL		\$1,249.99
PowerPro 501 66MHz XSL w/MB Cache		\$1,999.00
Turbo 601 100MHz for LC		\$1,739.00
Turbo 601 100MHz for iMac		\$1,739.00
Turbo 601 100MHz for iMac w/ P600		\$1,739.00
Turbo 601 100MHz		\$949.00
DVC		
Equalizer for PowerMac 6100/7100		\$74.99
Equalizer for PowerMac 8100		\$74.99
K & S Labs		
PowerMac 256K Cache Card		\$149.99
PowerMac 6100/7100 Booster		\$79.99
PowerMac Booster/Cache Brcl		\$149.99
Quadra and Centris Boosters		\$74.99
New Technology		
MacClip for Centris/Quadra 610		\$139.99
MacClip for Quadra 600/6040V		\$129.99
Power Clip for 6100/7100		\$127.99
Trinity Works		
Universal PowerPak 64MHz - 128MHz		\$94.99
Univ. PowerPak 64MHz - 128MHz w/56K Cache		\$259.99
Trinity PowerPak 61/80		\$79.99
Trinity PowerPak 61/80 w/256K Cache		\$219.99

TWORKING

Asante		
10T FriendlyNet Adapter		\$52.99
10T HUBS w/ 10T/10T Ports		\$189.99
MacCom-LC 10T		\$94.99
MacCom-H LC 10T/10T		\$159.99
MacCom-H LC 10T		\$104.99
MacCom-Nubus 10T/10T		\$109.00
MacCom-Nubus 10T/10T		\$117.99
MC-306164 RS-485 10T/10T		\$145.99
MC306164 RS-485 & Performa 600 (TN/TN/10T)		\$179.99
MCCL10T/10T LC, LCII, LCIII (10T)		\$219.99
Mini ENISC for PowerBooks 10T		\$277.99
Mini ENISC for PowerBooks 10T/10T		\$233.99
Mini ENISC for PowerBooks 10T/10T		\$119.99
NetExtender Hub (AU/10T)		\$129.99
Thin FriendlyNet Media Adapter		\$54.99
Dayna		
Dayna Pocket SCSI Link M (10T/10T)		\$287.99
Dayna Pocket SCSI Link T (10T)		\$235.99
Dayna LINK Media Access Server 10T/10T		\$1,899.00
DaynaPORT EII-3 (10T/10T) DP200		\$159.99
DaynaPORT EII-3 (10T/10T) DP202		\$159.99
DaynaPORT EII-3 (10T/10T) DP201		\$99.99
DaynaPORT EII-3 (10T/10T) DP204		\$99.99
DaynaPORT SCSI Link-3 (10T/10T) 10T		\$299.99
DaynaPORT SCSI Link-3 DP202		\$297.99
DaynaPORT SCSI Link-3 (10T/10T) DP201		\$145.99
DaynaSTAR MiniHub-5		\$147.99
EasyNet Transceiver 10T/AUI		\$55.99
EasyNet Transceiver TN/AUI		\$55.99
EtherPrint 3 (10T/10T/10T)		\$353.99
EtherPrint Plus 10T/10T		\$329.99
Mini EtherPrint T 10T		\$297.99
Mini EtherPrint T 10T/10T		\$299.99
Feron		
Ether 10T Star/16		\$569.99
Ether 10T Star/4		\$169.99
Ether10-T Transceiver (AUI/10T)		\$51.99
Ether10-T Transceiver (AUI/10T)		\$54.99
Ether10-T Transceiver (AUI/10T)		\$54.99
EtherWave AUI Transceiver		\$94.99
EtherWave AUI Transceiver		\$96.99
EtherWave LC Card		\$169.99

93339	EtherWave Multi Printer Adapter	\$335.99
96411	EtherWave Nubus Card	\$169.99
96414	EtherWave PB or Slot-less Mac Adapter	\$259.99
00828	PhoneNET DIN-8 10-PK PB310	\$184.99
00832	PhoneNET DIN-8 PB330	\$26.99
00779	PhoneNET Star Connector PB501	\$14.99
Run		
92176	RunShare	\$274.99
92179	RunShare LocalTalk 6-user Pack	\$139.00

COMMUNICATIONS/MODEMS

Global Village		
92131	OneWorld Combo - 2 Line (no modems)	\$1,274.99
92132	OneWorld Combo - 2 Line (w/modems)	\$1,749.00
92133	PowerPort Bronze	\$89.99
92134	PowerPort Gold	\$189.99
94389	PowerPort/Mercury for PowerBook 5XX	\$329.99
91167	PowerPort/Mercury for PowerBook 1XX	\$324.99
91168	PowerPort/Mercury for PowerBook DUO	\$329.99
93746	TelePort Gold II	\$109.99
91155	TelePort Platinum V34 for Desktop Macs	\$224.00
Motorola		
90621	Motorola Lifestyle V34 Data/Fax Modems	\$199.00
90622	Motorola Power 28 V34 Data/Fax Modems	\$249.99
90623	Motorola Lifestyle V34 Data/Fax Modems	\$359.99
Practical Peripherals		
92139	MacClass M14147-EZ PCMCIA	\$179.99
90630	MacClass M20687-EZ PCMCIA	\$349.99
92551	MacClass M20688-IT v.34	\$214.99
ORA		
	Cellular Data Link	\$189.99
Supra		
93719	FAXNetwork Software Server	\$59.99
93720	FAXNetwork Software 5 User	\$129.99
93721	FAXNetwork Software 10 User	\$189.99
93736	Supra Express 144 Plus	\$35.99
93738	Supra FaxModem 144LC Ext. - Mac	\$129.99
96655	Supra FaxModem 144LC Int. - PowerBook	\$157.99
96582	Supra FaxModem 288 Ext. - Mac	\$203.99
92142	Supra FaxModem 288 V34 Int. for PB	\$239.00
93849	Supra Express 288 V34 FaxModem	\$169.00
04143	Supra FaxModem V34B5 (MC) w/ST Cable	\$172.99
TT Systems		
92410	DLE-400 4-Device Auto FaxModem Switch	\$94.99
TDK		
91807	TDK 28.8 PCMCIA FaxModem for Apple Exp.	\$339.00
US Robotics		
96701	Mac & Fax Sponsor 14.4	\$112.99
90653	Mac & Fax Sponsor 28.8 V34	\$209.99

STORAGE DEVICES

Apple Hard Drives		
93566	1080MB Ext. HD	\$499.00
93538	540MB Ext. HD	\$399.99
Fujitsu		
01180	DynaMD 230MB Optical Drive	\$537.99
FWB		
06271	CD-ROM Toolkit	\$47.99
06555	Hard Disk Toolkit	\$115.99
06476	Hard Disk Toolkit - Personal Ed.	\$46.99
94121	SCSI Jackhammer	\$449.00
90124	PCI SCSI Jackhammer	\$389.00
Imagex		
93320	Imagex MacTransportable 230	\$452.99
95810	Imagex MacTransportable 90 Pro	\$295.99
95811	Imagex MacTransportable Multisize 150	\$421.99
91825	Zip Drive	\$199.00
Logic		
93565	PocketDrive 170MB	\$309.00
93566	PocketDrive 256MB	\$399.00
93564	PocketDrive 85MB	\$209.00
03949	Q Drive External 1080MB	\$459.00
03986	Q Drive External 540MB	\$339.00
Pinnacle Micro		
92403	RCD 1000 Recordable CD-Rom	\$1,599.00
93302	Sierra 1300 Optical	\$89.00
93331	Targa 230MB Optical	\$749.00
PLI		
94112	Infinity 230MB Optical 3.5"	\$999.99
95364	Infinity 200 Recordable Drive	\$614.99
95823	Infinity 270 Turbo S	\$537.99
95821	Infinity MAX Optical 5.25 1.3GB	\$3,990.00
Sony		
02139	Sony Portable MD Data Drive	\$599.99
Internal HD		
96929	Quantum 1GB	\$569.99
97950	Quantum 270MB	\$185.99
06941	Quantum 360MB	\$209.99
91600	Quantum 730MB	\$299.99
97991	Seagate 2.1GB Barracuda	\$1,024.00
PowerBook HD		
94074	256MB 2.5 Drive	\$240.99
99176	340MB 2.5 Drive	\$359.00
External HD		
96927	Quantum 1GB	\$499.99
06942	Quantum 340MB	\$259.99
01106	Quantum 540MB	\$299.99
Removable HD		
01142	SiQuest 20MB w/o cartridge	\$423.00
97989	SiQuest 270MB w/o cartridge	\$409.99
06539	SiQuest 44MB w/o cartridge	\$312.99

SCANNERS

Agfa		
02135	Arca II	\$2,729.99
02102	StudioScan	\$679.99
02103	StudioScan II	\$889.99
86551	StudioScan III	\$889.00
Epson		
91099	ES-1000C	\$739.00
02133	ES-1200C	\$949.99
02110	ES-1200C Pro Scanning System	\$1,208.99
Fujitsu		
92706	Scan Partner Jr.	\$379.99
Hewlett Packard		
90487	ScanJet 3C	\$349.99
Microtek		
06903	3ST Slide Scanner	\$834.99
06821	Automatic Document Feeder	\$359.99
91941	ScanMaker II	\$449.99
91940	ScanMaker IIG	\$329.99
01122	ScanMaker III	\$2,480.00
91942	ScanMaker HSP	\$499.99

Nikon		
06926	Coolscan	\$1,349.00
01174	ScanTech Flatbed	\$1,149.00
Polaroid		
01192	SprintScan 35mm	\$1,999.00
ReliSoft		
91990	Rel 24121E w/Photoshop LE	\$779.99
02138	Rel 4830T w/Photoshop 3.0	\$1,238.00
Umax		
91959	BitCard Reader for Mac	\$229.99
01189	PowerLook w/Transparency Adapter	\$2,999.99
02175	UC 1200 Pro w/Full Photoshop	\$859.00
01193	Vista S6 Pro w/Full Photoshop	\$739.99
91968	Vista S8 Pro w/Full Photoshop	\$779.99

INPUT DEVICES

Alps		
92698	Alps Glidepoint for Mac	\$70.99
Colson		
91862	Drawing Slate II 12x12 w/Pressure Pen	\$249.99
91869	Drawing Slate II 12x18 w/Pressure Pen	\$319.99
91870	Drawing Slate II 6x9 w/Pressure Pen 3.0	\$419.99
91864	Drawing Slate II 6x9 w/Pressure Pen	\$194.00
Kensington		
93628	Thinking Mouse ADB	\$84.99
Kurto		
92083	XGT 6x6 Graphics Tablet	\$274.99
Logitech		
04258	MouseMan	\$69.99
95912	TrackMan II	\$89.99
Wecon		
90643	ArtPad II (ADB) w/Erasing UltraPen	\$134.00
90644	ArtPad II (ADB) w/Erasing UltraPen	\$149.99
90645	Art II 12x12 (Serial) w/Erasing UltraPen	\$399.99
90646	Art II 6x6 (ADB) w/Erasing UltraPen	\$299.99

CD-ROM/MULTIMEDIA

NEC		
15726	NEC 2V CD-ROM	\$214.99
16728	NEC 300 Plus CD-ROM	\$284.99
94045	NEC 6XE CD-ROM	\$559.99
01124	Performanz 4x Quad CD-ROM	\$349.00
94039	Performanz Mini 2X CD-ROM	\$171.99
94042	Sanyo Quad CD-ROM	\$243.99
Sony		
91947	4X Speed CD-Rom CS0-7811	\$314.99
01172	Computer Speaker System CSS-B100	\$99.99
13166	SRS-DK Speakers w/ Subwoofer	\$134.99
91944	SRS-D4K Speakers w/ Subwoofer	\$199.99
PRINTERS		
Advanced Logic Integration		
90430	VersaLink 2 Serial Port Nubus Card	\$169.99
93317	VersaLink 4 Serial Port Nubus Card	\$199.99
93318	VersaLink Pro 4 Port Nubus w/Processor	\$269.99
CoStar		
95505	LabelWriter XL	\$149.99
95506	LabelWriter XL Plus	\$239.99
Digital Equipment		
20396	DECcolorwriter 1000	\$3,689.00
Epson		
19270	Stylus Color Ink Jet Printer	\$534.99
Fargo		
92705	PrimeraPro	\$1,379.99
Hewlett-Packard		
95527	HP ColorJet for 540/230 Printers	\$35.99
95519	HP DeskWriter 300	\$399.00
95517	HP DeskWriter 540	\$499.00



SuperMicro
\$100,000
Lease Credit

\$0 DOWN BUSINESS LEASING FROM SuperMicro

SuperMicro
\$100,000
Lease Credit

9500 Systems



9500/120 SUPERSTATION

- PowerPC 9500/120MHz
- Internal CD ROM
- 40MB RAM
- 2.1GB internal hard drive
- Extended keyboard
- Apple 17" Trinitron monitor
- Radius ThunderColor 30/1152
- dsc 12000c, 9600x9600 dpi color flatbed scanner
- TI MicroLaser PowerPro, 600 dpi, 8.5" x 11"
- 12 ppm printer w/ 2 AppleTalk connectors
- Wacom 12x12 Graphics Tablet
- SuperMicro Extended Services

0 Down!
\$199
PER MONTH

CPU Starting at \$2599

\$0.54 ADVY



9500/120 VIDEO WORKSTATION

- PowerPC 9500/120MHz
- Internal CD ROM
- 72MB RAM
- 2.1GB internal hard drive
- Extended keyboard
- Radius 21" Trinitron monitor
- Radius ThunderColor 30/1360
- Radius Video Vision Studio Pro Pak including 4.0GB Fast&Wide disk array w/ Fast&Wide SCSI controller
- Internal SDT-5000 DAT tape drive
- w/ 1 FREE tape
- SuperMicro Extended Services

0 Down!
\$399
PER MONTH

CPU Starting at \$2599

\$0.11 ADVY



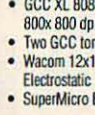
9500/132 ULTIMATE GRAPHICS WORKSTATION

- PowerPC 9500/132MHz
- Internal CD ROM
- 136MB RAM
- 4.0GB internal hard drive
- Sony 20SE Trinitron monitor
- Radius ThunderColor 30/1600
- Multifunctional SyQuest 200 /Sony 650 optical w/ SyQuest 200 cartridge, 650MB optical cartridge

\$180 ADVY

CPU Starting at \$3999

\$0.11 ADVY



SuperMicro Extended Services

8100 Systems



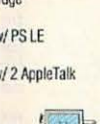
8100/80 VALUATION

- PowerPC 8100/80MHz
- Internal CD ROM
- 40MB RAM
- 540MB hard drive
- Extended keyboard
- External SyQuest 88c w/ FREE cartridge
- Sony 17SF Trinitron monitor
- dsc 6000c, 2400x2400 dpi scanner w/ PS LE
- Radius Thunder 24 video card
- TI Pro 600, 600 dpi, 8 ppm printer w/ 2 AppleTalk connectors
- Wacom 6x8 Artz Graphics Tablet
- SuperMicro Extended Services

0 Down!
\$179
PER MONTH

CPU Starting at \$2199

\$0.88 ADVY



8100/100 PAPERLESS OFFICE

- PowerPC 8100/100MHz
- Internal CD ROM
- 40MB RAM
- 1.0GB hard drive
- Extended keyboard
- Sony 20SE Trinitron monitor
- Radius Thunder 24 video card
- GlobalVillage TelePort Gold fax modem
- Umax UC630 scanner w/ page feeder and OCR software
- Pinnacle Micro CDR-1000 CD-ROM Recorder
- SuperMicro Extended Services

0 Down!
\$229
PER MONTH

CPU Starting at \$2399

\$0.82 ADVY

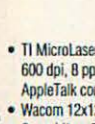


8100/110 DESIGNSTATION

- PowerPC 8100/110MHz
- Internal CD ROM
- 72MB RAM
- 1.0GB hard drive
- Extended keyboard
- Turbo SyQuest 200 external w/ 1 FREE cartridge
- Sony 20SE Trinitron monitor
- Radius Thunder 24 video card
- dsc 8000c, 3600x3600 dpi scanner w/ full Photoshop

\$0.81 ADVY

CPU Starting at \$2499



SuperMicro Extended Services

7100 Systems



7100/66AV DTP SOLUTION

- PowerPC 7100/66AV
- Internal CD ROM
- 24MB RAM
- 540MB internal hard drive
- Extended keyboard
- External SyQuest 88c w/ cartridge
- Sony 17SF Trinitron monitor
- Radius Thunder 24 video card
- dsc 6000c, 2400x2400 dpi color flatbed scanner w/ Transparency and Photoshop LE
- TI Pro 600 printer w/ 2 AppleTalk connectors
- Wacom 6x8 Artz Graphics Tablet
- SuperMicro Extended Services

0 Down!
\$149
PER MONTH

CPU Starting at \$1399

\$0.80 ADVY



SuperMicro Extended Services guarantee your satisfaction.

- All systems built with the finest components.
- Complete assembly and testing before shipping. No setup hassles!
- 24-hour automated technical support.
- 72 hour repair/replacement turn around for all DSC products.

SYSTEM SPECIALS

Every SuperMicro system is completely assembled and tested before shipping—all ready to run.

CPU/XKEY/MOUSE	MONITOR/CARD	CASH	LEASE
9500/132/80/4.3GB/CD	Sony 20"/4MB VRAM	\$9999	\$219
8500/120/16/2.0GB/CD	Sony 17"/2MB VRAM	\$5299	\$119
7500/100/40/1.0GB/CD	Sony 17"/2MB VRAM	\$4799	\$109
7200/75/8500/CD	Apple 15"	\$2199	\$49
8100/110/16/2.0GB/CD	None/Thunder 24	\$3799	\$99
8100/110/72/2.0GB/CD	Sony 17"/Thunder 24	\$6699	\$149
7100/80/40/700/CD	Sony 20"/Thunder 24	\$5629	\$129
7100/66AV/24/1.0GB	Sony 17"/Thunder 24	\$3999	\$95

MONTHLY SPECIALS



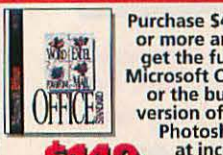
FULLY LOADED
8100/110
\$3799!

- PowerMac 8100/110 CPU
- 16MB RAM
- 2GB hard drive
- Internal dual-spin CD-ROM
- Radius Thunder 24 series IV video card

While they last!



FREE!
Apple CD-300
Dual Speed CD
ROM with every
system lease.
A \$199 VALUE!



Purchase \$400
or more and
get the full
Microsoft Office 3.0
or the bundled
version of Adobe
Photoshop 3.0.1
at incredible
savings!
\$149

SCANNERS

- 24-bit color
- 600x1200 dpi
- 4800 dpi interpolated
- Built in Gamma Correction

DSC
6000C
\$449!

SCANNER	DESCRIPTION	PRICE
DSC 6000c	600 dpi flatbed w/PS LE	\$449
ScanMaker Itsp	600 dpi flatbed	\$529
Umax PowerLook	1200 dpi flatbed	\$2469
Epson ES-1200c Pro	1200 dpi flatbed	\$1259
Epson ES-1000c Pro	600 dpi flatbed	\$769
ScanMaker 35t	1800 dpi slide	\$899

MONITORS



- Sony Trinitron Tube
- 17" diagonal screen
- 1024 x 768 resolution
- Flat, anti-glare screen

MONITOR	RESOLUTION	PRICE
Apple 14	14in., 25mm, 640x480	\$249
Sony 155F	15in., 25mm, 1024x768	\$439
Sony 175F	17in., 25mm, 1024x768	\$859
Sony 20SE	20in., 25mm, 1280x1024	\$1889
PrecisionView 17	17in., 25mm 1024x768	\$879
PrecisionColor 17	17in., 25mm, 1600x1200	\$949
PressView 21SR	21in., 25mm, 1600x1200	\$2989

TI MicroLaser
Pro 600 PS23
\$1189!

PRINTERS

- 600 dpi camera ready output
- 8.5" x 11" print size
- 500 sheet capacity

MODEL	RESOLUTION	SIZE	PRICE
TI MicroLaser Pro 600 PS23	600x600	8.5"x14"	\$1189
TI MicroLaser Pro-E	600x600	8.5"x14"	\$1365
TI MicroLaser PowerPro	600x600	8.5"x14"	\$1629
Primera Pro Color	300x600	8.5"x11"	\$1499
Primera Pictura 310 Color	300x300	12"x18"	\$3899
Apple Color StyleWriter Pro	300x300	8.5"x11"	\$499
GCC XL 808	600x600	11"x17"	\$2189
GCC XL 808	800x800	11"x17"	\$2719

GRAPHICS TABLETS

- 1016 lpi resolution
- Pressure-sensitive stylus with no cord or batteries!

WACOM
12"x12"
\$439!

MODEL	SIZE	PRICE
Wacom Art2	6" x 8"	\$309
Wacom SD-420E	12" x 12"	\$439
Wacom SD-310E	12" x 18"	\$699
Wacom UD-1825	18" x 25"	\$1999

RADIUS
THUNDER 24
\$799!

VIDEO CARDS

MODEL	RESOLUTION	PRICE
Radius Thunder 24	1152x870	\$799
Radius Thunder II Series IV GX 1152	1152x870	\$1809
Radius Thunder II Series IV GX 1360	1360x1024	\$2239
Radius Thunder II Series IV GX 1600	1600x1200	\$2769
Radius ThunderColor 30/1152 (PCI)	1152x870	\$1539
Radius ThunderColor 30/1360 (PCI)	1600x1200	\$1939

DSC FAXMODEM
\$98!

- 14,400 bps
- 100% AT&T compatible

FAX
MODEMS

MODEL	DESCRIPTION	PRICE
dsc Turbo FaxModem	External, 14.4K bps	\$98
US Robotics Sportster 28.8 V.34	External, 28.8K bps	\$248
SupraFAXModem 28.8 MG V.34	External, 28.8K bps	\$219
GlobalVillage TelePort Gold II	External, 14.4K bps	\$123
GlobalVillage TelePort Platinum	External, 28.8K bps	\$226

Hurry! Supplies Limited!

NOMAI 44MB CARTRIDGES 20 FOR \$499!

LOW Prices

SYQUEST CARTRIDGES

CARTRIDGES	(5+ or with drive purchase)	PRICE
270MB Cartridges	(5+ or with drive purchase)	\$56
200MB Cartridges	(5+ or with drive purchase)	\$70
105MB Cartridges	(5+ or with drive purchase)	\$48
88MB Cartridges	(5+ or with drive purchase)	\$45
44MB Cartridges	(5+ or with drive purchase)	\$29 /39

OPTICAL CARTRIDGES

3.5" OPTICAL	PRICE
Sony 128MB	\$29
dsc 128MB	\$14
Komag 128MB	\$24
Verbatim 128MB	\$18
dsc 230MB	\$24
Komag 230MB	\$28
Sony 230MB	\$39

5.25" OPTICAL

PRICE	
Sony 600/650MB	\$69
DSC 600/650MB	\$59
Komag 600/650MB	\$69
Tahiti II 1GB	\$159
Komag 1.0GB	\$81
Philips 1.3GB	\$69
dsc 1.2/1.3GB	\$79
MaxOptix 1.2/1.3GB	\$83
Sony 1.2/1.3GB	\$85

TAPES

CARTRIDGES	PRICE
Sony DAT 90m	\$12
Sony DAT 120m	\$24
Maxell 8mm 112m	\$21
Sony 6250	\$25
Sony 6525	\$29

FREE! Sony Video Tape with any 10 Sony Cartridges

SYQUEST 200MB \$345!

High speed—15ms access time!
5.25" format
Compatible with SyQuest 44, 88 and 200MB cartridges
Meets the requirements of image processing professionals

200MB

SYQUEST DRIVES

Turbo-charged SyQuest Drives!

MODEL	INTERNAL	EXTERNAL	PRICE
SyQuest 270	\$360	\$400	\$425
SyQuest 200	\$345	\$385	\$410
SyQuest 105	\$105	\$145	\$170
SyQuest 88C	\$250	\$290	\$315
SyQuest EZ 135	N/A	\$199	\$225

Includes external drive, 25/50 SCSI Cable, MAC SW and terminator. Turbo model includes FWB Hard Disk Toolkit and 72-hour warranty repair.

HARD DRIVES

NEW!

dsc FWB Hard Disk Toolkit. \$59 Value!

Quantum

TURBO QUANTUM 1.0GB \$410!

dsc Turbo Drives
Now even faster!
Turbo models have guaranteed 72-hour replacement plus FWB Hard Disk Toolkit—FREE!

OPTICAL DRIVES

High 2.0MB p/s transfer rate
Economical storage of large color images and digital audio/video data

SONY 1.3GB \$1499!

5.25" DRIVES

MODEL	CAPACITY	SEEK	MACKIT	PRICE
Sony 650	650MB	19ms	\$999	\$1049
Ricoh 650EX	650MB	25ms	\$899	\$949
MaxOptix-Tahiti III	1.3GB	25ms	\$1989	\$2039
Ricoh 1.3GB	1.3GB	24ms	\$1479	\$1529
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512MB Go	17ms	\$339	\$459	\$484
365MB	11ms	\$120	\$180	\$205
420MB	14ms	\$175	\$235	\$260
540MB	14ms	\$180	\$240	\$265
730MB	11ms	\$215	\$275	\$300
850MB	14ms	\$245	\$305	\$330
1.0GB	9.5ms	\$325	\$385	\$410
2.1GB	8.5ms	\$755	\$815	\$840
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4.3GB Barracuda 4LP	8ms	\$1479	\$1539	\$1589
4.3GB Barracuda 4W*	8ms	\$1579	\$1639	\$1689
3.4GB Elite 3	10ms	\$839	\$899	\$949
9.1GB Elite 9	11ms	\$2209	\$2309	\$2359

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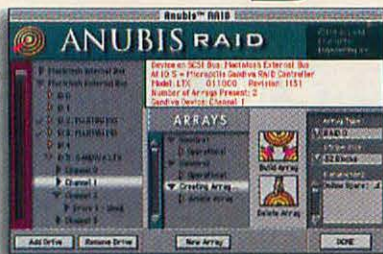
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PrecisionColor 8XJ	489.	LaserWriter 16/600	1495.	
PrecisionColor Pro 24X	1095.	LaserWriter Pro-810	2395.	
PrecisionColor Pro 24XK	775.	HP Laser 5MP/4MV	985./2695.	
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Thunder Color/30-1152	1545.	GCC Elite-XL 1208	3995.	
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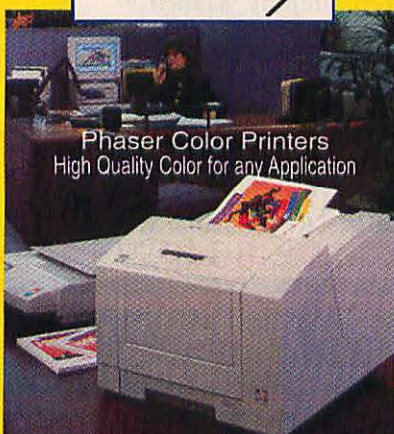
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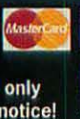
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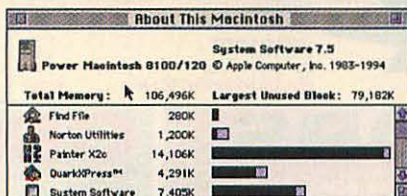
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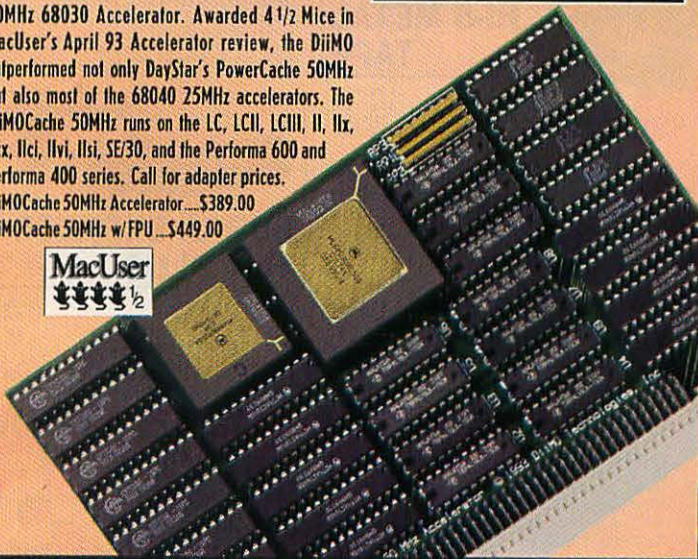
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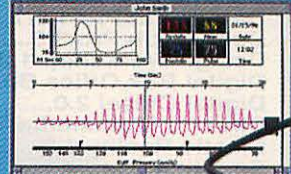
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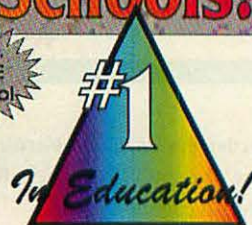
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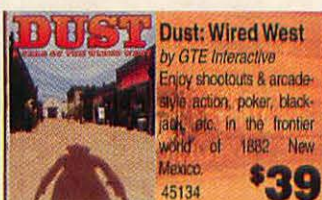
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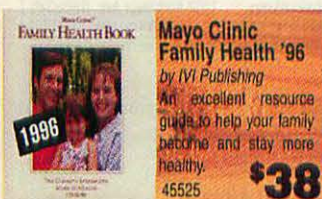
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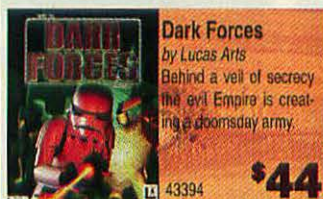
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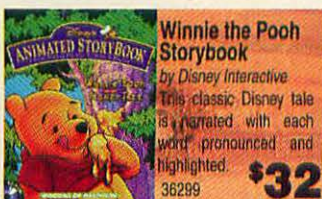
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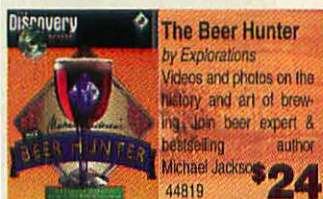
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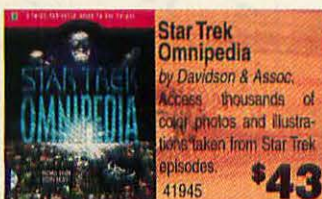
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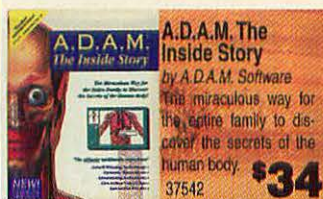
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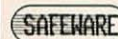
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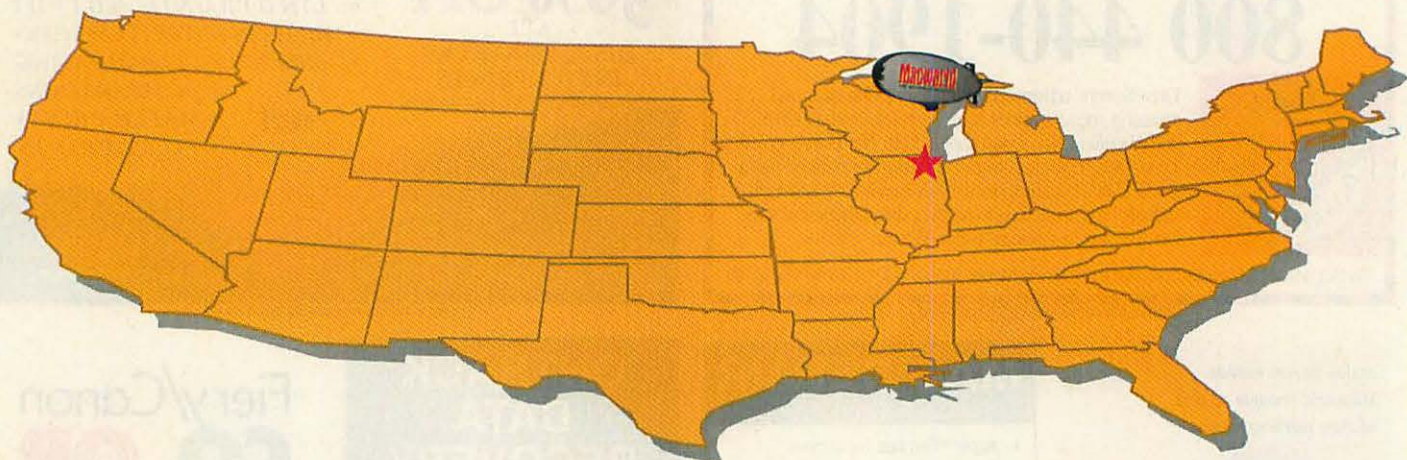
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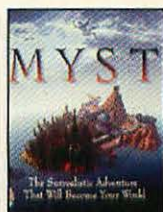
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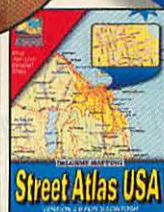
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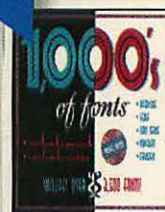
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Guy, Meet Guy

The Macworld columnist grills the Apple Fellow

APPL FELLOWS WERE astounded and dumbfounded recently when our columnist Guy Kawasaki was pulled back into the Apple mother ship, with the unlikely title of Apple Fellow. Here, in a never-before-attempted format, is Guy the *Macworld* columnist interviewing Guy the Apple Fellow.

Guy: Tell me, Guy, why are you returning to Apple?

Guy: Returning was the only way to get a "Been There, Done That" T-shirt, an 8500, and a color laser printer right away (although "right away" turns out to be six to eight weeks).

Guy: You have to wait six to eight weeks to get an 8500?

Guy: Hey—I found this out only after I started. All this talk about the sky falling and market share going into the toilet because of Windows 95 is just so much bull. Apple can't make Macs fast enough. Next time some Windows yo-yo busts your chops, ask him if his computer's manufacturer has that problem. Maybe Apple needs a *manufacturing* Fellow.

Guy: Given that you've been so critical of Apple in this column, why would the company take you back?

Guy: I was pretty surprised when it happened, too. Either Mike Spindler doesn't read this column, or he understands that my criticism is born of a desire to see Apple succeed. It would really bother me if the former is the reason.

Guy: So what is an Apple Fellow?

Guy: Traditionally, an Apple Fellow comes from a research, scientific, or academic background—for example, guys like Steve Capps, Alan Kay, and Don Norman. So I'm an anomaly. The other Apple Fellows invent the future; I sell the past.

Guy: What are your goals?

Guy: First, to help create a developer program that is as far ahead of other companies' as our technology is. Second, to invigorate Apple employees with fervor and zeal. Third, to own the first PowerPC PowerBook off the production line. Not necessarily in this order.

Guy: Realistically, how can you

evangelize stuff you've criticized—PowerTalk and Newton, for example?

Guy: Now we come to the tough questions. I criticized the implementation, not the vision, of these products. No one would like this kind of technology to succeed more than I would. Even if I personally can't get excited about every single Apple product, my role is to teach Apple employees how to evangelize the products that excite them.

Guy: Is Windows 95 good enough to fool people?

Guy: It depends on which people. Pigs will floss before Windows fools discriminating people. Saying Windows 95

get it: There will always be a market for products that lead the industry, that are different, that appeal to the "best of us," and that set standards, not copy them.

The greatest threat to Apple is not Windows or Microsoft. The greatest threat is if Apple doesn't have the courage and insight to use Mac-generated profits to create future products so great that we either stop using Macs—just like we stopped using Apple II's—or use the products in addition to Macs.

In this sense, for all the heat it's taken—including plenty from me—Newton is a very good sign. It shows that Apple had the courage to do something new—something incompatible with today's "standards." You don't see any Redmond-based companies doing that, do you? And we haven't heard anything from Xerox PARC for decades. If not for Apple, who would the industry copy?

Guy: Finally, the big question: In view of your new relationship with Apple, can you still write this column for *Macworld*?

Guy: That's a controversial question. Perhaps we should let *Macworld* answer.

MW: We view Guy's Apple Fellowship with great enthusiasm, and we congratulate them both. Apple's done a really smart thing in bringing Guy back as a Fellow. The Macintosh has never had a more energetic or more effective evangelist, and Apple Computer has seldom been more in need of his gifts.

Sadly, the noble mission that Guy has accepted on behalf of the Macintosh is incompatible with *Macworld*'s most valued asset—our ability to report on the Macintosh marketplace without bias. It is therefore with regret that we say goodbye to Guy the columnist. We will miss having his irreverent insights grace our back page. At the same time, we welcome Guy the Apple Fellow and sincerely wish him success. We're confident we haven't heard the last of Guy Kawasaki. **m**

GUY KAWASAKI is an Apple Fellow and ex-*Macworld* columnist. Since this is his last column, we'll let him blatantly hawk his products: Macintosh! Claris Emailer! *How to Drive Your Competition Crazy!* You can get in touch with him at <http://www.usml.edu/~sbmeade/macway/indexpic.htm>.



is equal to Macintosh is like finding a potato that looks like Jesus and believing you've witnessed the second coming.

Guy: What can Apple do in the face of Windows 95? Is Apple doomed?

Guy: If I had a nickel for every time I had to answer this kind of question, I'd be so rich I could buy a house where Bill Gates's estate would fit inside my guest bedroom. MS-DOS was supposed to kill Apple. Then Windows 1 (the legalized rip-off), Windows 2, Windows 3, Windows 95, OS/2, and Windows NT.

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